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THE JOURNAL OF THE TELEPHONE INDUSTRY

What types of business Stromberg-Carlson

Answer:

A business office is a logical prospect for the installation (and consequent revenue) of a Key Turret System if it fulfills these two simple requirements: 1st, if it's not large enough to warrant a PBX switchboard. 2nd, if traffic is heavier than can be handled by one or two individual telephones. The Stromberg-Carlson Key Turret may be had with 3, 6 or 9 key-and-lamp-ended lines, and equipped with essential features for holding, signaling and busy supervision. To give you an idea of its wide application, here are five examples of current installations, serving a real variety of business firms.

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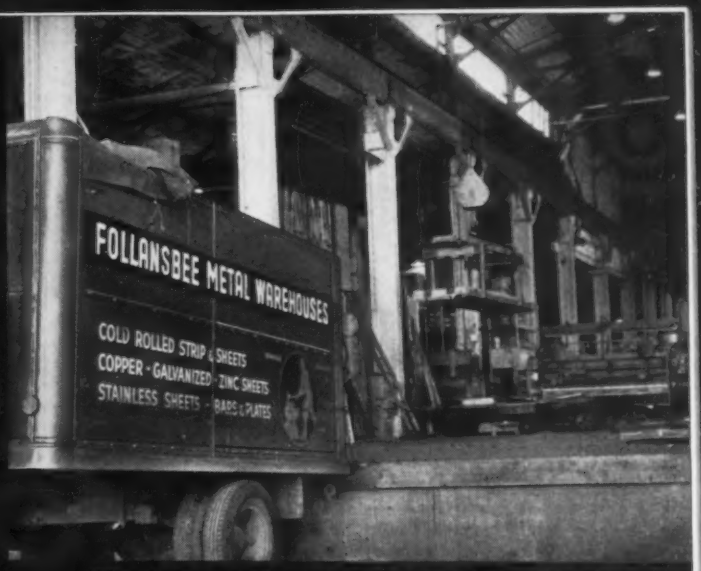
ss are prospects for
on Multiple-line Key Turrets?

PRACTICALLY ANY BUSINESS!



This large steel company, with Sales, Warehouse and Executive Offices at one location, has ten turrets, each of 6 lines.

The downtown offices of this business machine company, housing Demonstration and Sales Departments, use 8 turrets, each 6-line.

Incoming calls, as well as intercommunication between sales personnel of this Travel Agency, are handled by 5 turrets, of 6 lines each.

In the Sheriff's office of this County Headquarters, routine and emergency calls go through 9 turrets, each of 3 lines.

This Ambulance Service handles an entire city's emergency calls. Communication is by 4 turret systems, each of 6 lines.

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FLASHES AND PLUGS

ONCE IN AN OCTILLION. "I noticed a paragraph in your 'Flashes and Plugs' column in TELEPHONY, issue of Jan. 5, and thought it might be of interest for you to know that one bridge-playing telephone man had overcome those one in 54 octillion odds of holding a perfect bridge hand," P. Flattery, assistant general contract agent for Ohio Bell in Columbus, said in a recent letter to TELEPHONY.

"Playing in a social bridge game at Cleveland, in 1926, I was dealt (I didn't deal) a hand containing 4 aces, 4 kings, 4 queens and the Jack of diamonds. This event is duly attested to by a notarized signed statement by all spectators present and was reported in the Cleveland *Plain Dealer* and other papers throughout the country.

"You may also be interested in exceptions taken to the viewpoint of the quoted mathematicians by some of our Bell telephone probability experts. The position is taken that the premise of 13 cards of one specific suit turning up, i.e., 13 spades is rarer than the 12 specific cards, 4 aces, kings and queens plus 1 jack which may be of any suit.

"I, for one, will not argue with the figure given in your magazine of 53,644,737,765,488,792,839,237,440,000; I can't even pronounce it."

• • •

G.I. RADIO. Somewhere, just south of no man's land in Korea, a regiment of infantry soldiers will be listening to the radio tonight. They'll hear the up-to-date news from home—the latest numbers on the hit parade—perhaps a number requested by themselves—and they'll enjoy their favorite comedians and actors.

The news and music comes from a single government issue radio in regimental headquarters, and is piped through telephone wires down to company and platoon command posts, and right on down to the squads through the communications system.

It's all part of the information program of the 180th "Warrior" Infantry Regiment of the 45th Infantry Division.

Says 1st Lt. James Defrates, regimental information and education officer from Okemah, Okla.:

"My problem was to get the news of the world to the men on the line as quickly as possible, and it seemed that telephoning the news as it was announced by the Armed Forces Radio Service would be the best method.

"But as long as we're giving them the news, we might as well throw in some music and entertainment."

• • •

COMPOUNDING CONFUSION. The Mountain States Telephone & Telegraph Co. recently found it had overcharged the Idaho House of Representatives 10 cents for a telephone call, so the company mailed a dime to C. A. Bottolfsen, chief clerk of the House.

Bottolfsen forwarded it to State Auditor N. P. Nielson.

Now Nielson must send Bottolfsen a receipt for the dime, make out a deposit slip (four copies) and credit it to the House account.

"Personally," sighed Nielson, "I wish the phone company had kept the dime."

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

March 22, 1952

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Use it just Once and it will pay for itself many times over

HOMELITE *STANDBY* POWER

The very day we were working on this advertisement a blizzard . . . the worst of the year . . . hit us. Listening to the radio we heard reports of not one, but many telephone exchanges getting by on emergency standby power. It was vivid proof that Homelite Standby power is a must for telephone service.

Storms come out of nowhere . . . ice storms, snow storms, wind storms, thunderstorms . . . and they knock out power. And when power is out long enough for batteries to run down . . . you're out of business, out of service, out of revenue.

At any such time, Standby Power . . . supplied by Homelite Carryable Generators . . . pays for itself many times over. Why be without it? Let our engineers show you how effectively and economically Homelite Generators can meet your standby requirements. Write today.

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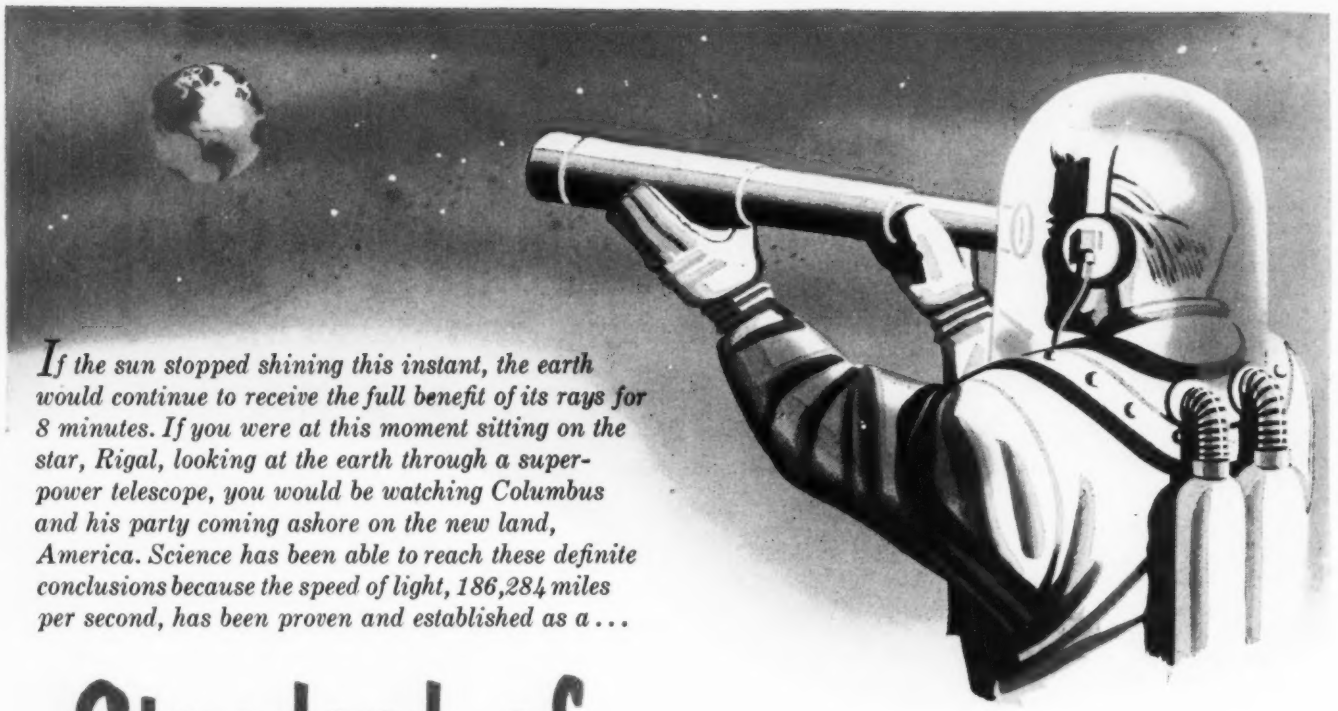

If the sun stopped shining this instant, the earth would continue to receive the full benefit of its rays for 8 minutes. If you were at this moment sitting on the star, Rigal, looking at the earth through a super-power telescope, you would be watching Columbus and his party coming ashore on the new land, America. Science has been able to reach these definite conclusions because the speed of light, 186,284 miles per second, has been proven and established as a . . .

Standard of Measurement

We have established standards of measurement which accurately determine the relative success of a directory publishing job regardless of geographic location or size of exchange.

We find, however, that few independent telephone companies have ever applied such proven standards of measurement to their directories. Many companies which had previously been satisfied with a simple comparison between their current directory and their previous issue found that this method of measuring results was inadequate and inaccurate when they became familiar with our proven standards.

Let us ask you just one question.
Does your company use the "old fashioned" method?

Our standards of measurement have been established on the basis of the records we have compiled in the course of publishing* telephone directories for more than 4,000 Independent Telephone Exchanges. Among other things our standards will show you how much directory revenue you should receive per station, per business account, and per advertiser. And how many advertisers you should have per 100 business accounts.

These proven standards, when applied to your current directory, will indicate whether or not you are receiving maximum revenue from it. And if not, just how much more net profit you should expect.

Send us a copy of your current telephone directory. Without any cost or obligation we will make a comprehensive study of it for you.

Do it now. You have much to gain and nothing to lose.

* Our directory publishing service includes the sale of all advertising, compilation, printing and preparation of directories for delivery. We now serve Independent Telephone Companies in 28 states across the nation. May we serve you?

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Sees administration making utilities "whipping boy" in coming election campaign. . . . Pattern set at NRECA convention. Predicts REA will increase activities in telephone loan program to perpetuate agency. Indications point to more critical materials for telephone industry.

REGULAR readers of the political gossip in this department could not have been surprised at the bitter attack unleashed by President Truman and other administration officials — notably Secretary of Interior Chapman—on the electric utilities recently in Chicago. The occasion for this blast at the power companies was the annual convention of the National Rural Electric Cooperative Association. But the real provocation could have stemmed from President Truman's annoyance at the surprise outcome of the New Hampshire primary election—in which he ran second to Sen. Estes Kefauver (D., Tenn.).

President Truman had no direct comment on these New Hampshire results. But the familiar political strategy of distracting the public attention to another subject was made apparent two days later, in Chicago, by Secretary Chapman, even as your correspondent predicted last week in this department.

Public utilities of all kinds must realize that they stand a good chance of being the administration's whipping boy in the coming campaign. The power companies will, of course, get the heaviest broadsides; but other utilities will by no means escape the political spattering. The reason is that the administration lacks many other things or issues to talk about. How else can we explain the odd statement made by Secretary Chapman in Chicago, with a perfectly straight face, to the effect that the fight of the federal government to expand its operations in the electric utility business was "one of the greatest issues of our time."

This statement was made on the same day that (1) Congress quizzed two more government federal tax collectors from New York on charges of taking bribes (one refused to answer); (2) the case of the ex-head of the St. Louis office went to a federal jury; (3) four top officials of the Maritime Commission showed up to contradict the explanation given by the government's own "clean-up" man about his part in surplus ship deal purchases. In other words, the so-called "utility issue" has been a good political horse in the past. So, it is easy to see why the administration would turn to it for one more ride. Whether the voters will be distracted by this well-known "look over here" technique remains to be seen. It has happened before; and it could happen again.

Opposition to or criticism of the Rural Electrification Administration will be made a very definite political issue, according to Representative Clarence Cannon (D., Mo.), chairman of the House Appropriations Committee and long-time champion of REA. On the same day that President Truman's blast against the power companies was read to the REA co-ops by Secretary Chapman, Cannon gave the 4,000 assembled farmer members the following political advice: "Any member of Congress who votes for REA measures deserves your support. Any who votes against REA—his hide ought to be nailed to the barn door. Unless we adopt that policy, and soon, REA is doomed."

As these gentlemen see it, the problem of the whole political future of our nation is as simple as that! Congressmen ought to be elected primarily, if not solely, on the basis of their votes for or against REA appropriations, or other administration electric power proposals in Congress. Corruption or stealing by government officials, high taxes, foreign policy blundering, or anything else should all be overlooked, provided the candidate for re-election, in any particular congressional district, can show a perfect record of support for the administration's power program which has already been responsible for socializing one-fifth of the electrical industry of the nation in less than 20 years. President Truman says "socialism" is just a scare word; but at least the investor has a perfect right to be one-fifth scared!

And why is REA doomed, unless Congress rallies to its support with more funds? *This is where the telephone industry can well afford to take special notice!* The truth of the matter is that REA is rapidly working itself out of a job—that is, the job for which Congress originally created it. REA Administrator Claude R. Wickard told the NRECA convention in Chicago that more than 85 per cent of all farms in the United States have electric service. Wickard predicted that "within two or three years, if materials are available, the backbone lines to serve every farmer who wants electricity will be in service."

So what will REA do, then? Two courses are open for REA, other than liquidating and going out of business —always a horrible thought and an intolerable solution from the standpoint of a government bureau: (1) REA can move into the business of making loans for the generation and transmission of electrical energy, now that distribution to farms has already been taken care of; (2) REA can concentrate its efforts more and more on the rural telephone loan program.

REA Turning More to Telephones?

One reason why REA may have to turn to more intensive activity in telephone loans, rather than the generating and transmission phases of the power business, lies in a combination of litigation and appropriation troubles threatening to block the latter course. During the past two years REA has formed an alliance with the Interior Department to finance the building of steam generating plants for rural co-ops — plants which are later turned over, on a long lease basis, to federal power agencies controlled by the Interior Department. There has been some resentment in Congress over this

XUM

practice of one federal agency diverting its appropriation to another federal agency. A lower state court in Arkansas called the whole business illegal early this month. Similar litigation is pending in the District of Columbia courts with respect to a 35-county "super co-op" system in Missouri. In the light of these difficulties, REA may be forced by circumstances to concentrate on rural telephone loans.

One of the resolutions adopted by the co-ops' Chicago convention called upon Congress to make available administrative funds to REA in sufficient amounts "effectively to carry on rural electrification and rural telephone programs." Clyde T. Ellis, executive manager of the NRECA, claimed that more than 3 million farm families still have no telephone service.

It may or may not be significant, but during a period of a little more than two weeks, prior to the end of the Chicago NRECA convention, REA had approved loans for telephone co-ops amounting to more than 3½ million dollars, as follows: Pineland Telephone Cooperative, Swainsboro, Ga., $625,000; Lawton Cooperative Telephone Association, Lawton, Ia., $699,000; Twin Lakes Telephone Cooperative Corp., Gainesboro, Tenn., $573,000; Mid-rivers Telephone Cooperative, Circle, Mont., $1,675,000.

More Materials for Telephones

Last week William M. Day, vice president and general manager of Michigan Bell Telephone Co., officially became chief of the NPA Communications Equipment Division. He succeeds Robert E. Williams of Automatic Electric Co. of Chicago, who had been on leave from his own company for a six-month tour of duty as head of the NPA emergency control division.

Williams leaves a much better outlook on prospects for material supplies than when he came on the job last fall. During Williams' tenure, there were several times when the outlook was bleak, indeed. But the present atmosphere seems to be one of temporary relaxation of the strict rationing of scarce materials which government officials had solemnly promised would be in store for all industry throughout the balance of 1952.

As far as the telephone business is concerned, no other course would make sense. With the relaxing of material restrictions on new homes, more steel and aluminum for more automobiles and other industries, it is hard to see how adequate metal supplies could be withheld from the telephone industry, if it is expected to give service to these new homes and new buildings. The exact allocations for the telephone industry during the third quarter (July, August, September) were to be made public last week. But there is reason to believe that more copper will be made available than had previously been expected. In fact, copper is the only metal with which NPA is being stingy at all these days. Steel and aluminum have become almost plentiful, as compared with the dire NPA forecasts of a mere month ago.

Of course, all this could be and probably is quite temporary. Some cynical souls even suggest that it might be, in part, politically manipulated to prevent unemployment showing up in Detroit, for example, during the election campaign. Other suggestions are to the effect that the military people bit off more materials than they could chew, and that the armed forces now have to spit some of it back up, because military production is way behind schedule. So we will have more butter, for a while, and maybe more telephones, even if we do not have enough guns, planes, tanks, etc. But don't forget, more materials will probably go to REA co-op construction, which is only fair.

The NPA Communications Equipment Division has now been elevated to a status equal to that of "claimant agencies" for other industries. It has been made a member of the Program Adjustment Committee of NPA and DPA. This means that the division will be in a position to present its requests for additional allocations directly to DPA rather than through some other agency. This move is regarded as recognition of the equal importance of the communications industry with other utility industries, such as electric power, gas, and railroads, as far as material allocations are concerned.

One annoying restriction, which the telephone industry would like to get rid of, is the general building construction restriction imposed by the NPA Construction Division. As in the case of other utilities operating under special NPA orders (governing their supplies of controlled materials), telephone companies cannot use their rated allocations for building construction other than operating plant facilities (meaning switchboards, lines, etc.,

(Please turn to page 28)

REA Approves $541,000 in Allocations

The Rural Electrification Administration approved one supplemental loan and one telephone loan allocation, totaling $541,000 during the week of Mar. 3 to 7.

Also on Mar. 3, the REA approved a loan contract with the Gulf Telephone Co. (formerly Gulf Service Co.) of Foley, Ala.

On Mar. 6, REA approved an allocation of $460,000 for LaFourche Telephone Co., Golden Meadow, La., which supplements the original allocation of $450,000 approved on Sept. 1, 1950. This loan is necessary because the first loan is not now sufficient to finance the construction involved. Engineering and economic studies show that the loan is still feasible at the higher amount, REA said.

Revised plans for the system call for 33 additional miles of line to serve 327 new subscribers and six dial central offices instead of five. These offices will be located at: Grand Isle, Golden Meadow, Galiano, Cut-off, Leeville and Larose. There will be no toll charge for calls between the Larose, Cut-off and Galiano central offices and Golden Meadow, their trading center.

The completed system will provide modern dial telephone service to 1,991 subscribers in LaFourche and Jefferson Parishes over 125 miles of line.

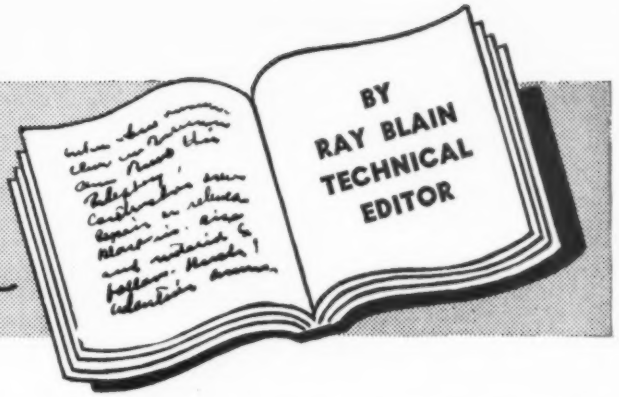
* * *

Lavant (Me.) Telephone Co., on Mar. 6 received a $81,000 loan allocation. The funds will be used to improve and expand rural telephone service in Penobscot County.

The company now furnishes magneto service to 163 subscribers over 47 miles of line. The REA loan will enable the borrower to build 17 miles of new line, rebuild 45 miles of the existing line, convert the system to dial operation and add 137 new subscribers.

When the improvements and expansion made possible with REA financing are completed, this telephone system will furnish dial service to 300 rural subscribers over 62 miles of line.

THE PLANT MAN'S *note book*



BY RAY BLAIN TECHNICAL EDITOR

A READER informs us that when .045 spinner wire is used to attach a small cable to a messenger strand, the cable does not have the tendency to twist as it does when the .091 wire is used.

He states also that the larger wire is satisfactory in every way for use with larger sizes of cable. If any of our readers have had experience along this line we shall be pleased to hear about it.

• • •

It has been said: "Great men know how to take orders. Weaklings, whine and grumble about them."

• • •

Nonferrous metal objects may now be given corrosion protection by the use of water-white synthetic lacquer. This coating has high resistance to tarnish caused by body acids, alkalies and corrosive elements in atmosphere.

The lacquer is applied in a hair-thin coating which preserves an original plated metal effect. Resin-base material can be applied by brush, dip or spray method and is available in gloss, semi-gloss and flat types. It dries dust-free in a few moments and is safe for handling in about 10 minutes.

• • •

Someone has said that in youth we learn; in age we understand.

• • •

Several of our larger operating companies have substituted their ingenuity for standard line construction practices to provide service for a few delayed-order customers who were off the beaten path. Some of these jobs have been completed on an experimental basis to determine, over a period of time, whether this non-standard type of installation is practical.

Wire was strung on trees, fence posts, and even along the ground to reach these isolated locations. With improved wire insulation, there is every reason to believe that this type of construction may give good service over a comparatively long period. Records will be maintained over a term of years which should show whether this cheap type of construction will prove an advantage for certain locations.

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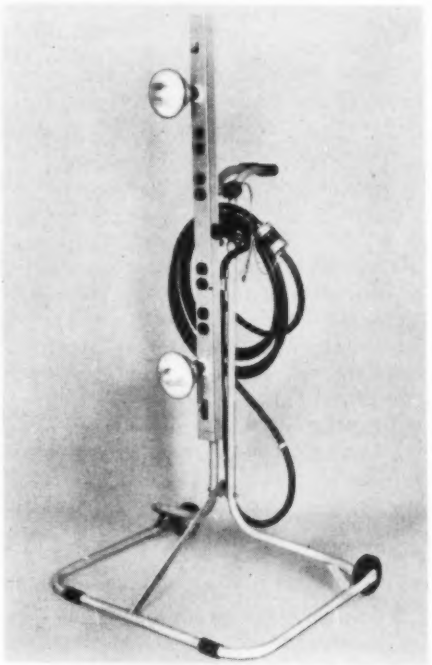
A portable power device of a new design should prove desirable when emergency line repairs must be made at night. This device, which is collapsible and fully portable, may be



conveniently carried on maintenance and repair trucks (See cut).

The portable assembly consists of a 3-foot-10-inch strip of Surfaceduct, swivel-mounted on an all-steel tubular carriage. The unit's wheels are made of special materials that are non-conductive, and which resist moisture, oil and wear. Engineered for complete safety, the strips are fully grounded and are furnished with a circuit breaker to provide full worker protection.

The portable assembly is equipped with a 21-foot power line of three-conductor, heavy duty cable. One of these units carries eight outlets plus two flood-light sockets and proves ideal for portable power tool use. This device carries an approved rating for a 20 ampere load at 115 or 220-volt operation.

• • •

It has been said: "Behind an able man there always are other able men."

• • •

The "B" desiccant injector is now available and should prove extremely useful in the Independent telephone field. This device makes it possible to inject desiccant into a splice suspected of having low resistance. The injector method makes it possible to clear trouble without removing and replacing the lead sleeve in many cases.

It consists of a cap designed to fit on the threaded opening of the standard "B" desiccant can and is equipped with two fittings, one of which is connected to an F-pressure testing flange on the lead sleeve. The other fitting is a valve to which the pressure testing chuck can be attached to provide gas pressure required to blow the desiccant into the splice.

When gas is not available, dry compressed air may be used to force the desiccant into splices.

• • •

The two-year-old daughter of a certain household lamented the fact that everyone used the telephone except her. She pleaded for a chance to call her friends. Her limited conversational ability made this a delicate task and her occasional illicit attempts to use the dial resulted in conversations that proved rather upsetting to her folks.

Then the mother finally arrived at a plan which she thought would solve the problem. When the young lady's urge to talk became irresistible, she dialed the weather number and let her listen to the continuous recorded voice giving the weather reports. This worked fine for a time, but there came a day when she slammed down the handset and yelled to her mother, "That lady won't listen to me talk."

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Controlling Costs

in the Traffic Department

By W. B. GARNETT*

[**EDITOR'S NOTE:** *Garnett's talk, published here, was given at the recently held convention of Virginia Independent Telephone Association.*]

* * *

ALL of us in the telephone industry know the traffic department as the production department, where the product we sell, the completed call, is turned out. To our customers the operator often is the telephone company, and the opinions of the company which our customers form are based largely on the impressions made by the operators. In our public relations the traffic department plays a most vital role. We must, therefore, use every possible method and means to see that this department has proper tools and sufficient, well trained personnel to render good telephone service.

Sometimes, though, we overlook what this department does to the bottom line of our balance sheets. If your company is one of the average Independent telephone companies, your traffic department expenses amount to approximately 50 per cent of your total operating expenses. Then is it not logical that much importance should be placed on effectively controlling these expenses?

To show you what traffic expenses are in relation to other expenses, I would like to call your attention to a simple study made from the operating statements of my company for the first six months of 1951. This study was made to determine what per cent of the total operating expenses was chargeable to each department:

Maintenance expense 24.8%
Commercial expense 19.6%
Miscellaneous expense 6.1%
Traffic expense 49.5%

I realize that percentages mean little to you, but let's substitute one dollar for the total operating expenses, and we find that forty-nine and one-half (49.5) cents went into the operation of our traffic department.

For a moment, let's analyze these traffic expenses. They are made up of four items: General traffic supervision; operators' wages; central office house service, and other traffic expenses. Of the total traffic expenses we find that 4.5 per cent is for general traffic supervision, 2.5 per cent is for central office house service, 0.5 per cent is for other traffic expenses, and 92.5 per cent is for operator's wages. Now, I do not advocate that we overlook the possibility of effecting savings in the smaller items, but certainly we have more reason to concentrate on the larger one —operators' wages.

There are several things which have a direct bearing on operators' wages; some of the more important are force adjustment, operating load control, training, loss control and supervision.

Force adjustment is determining the number of work units in a central office throughout the day and each half hour of the day; it also means the number of operators required each half hour throughout the day to handle the traffic which is offered. The basis for properly adjusting the force in an office is accurate peg counts. A peg count which is not accurate is of little value and sometimes is worse than no peg count at all. Therefore, peg count work must be closely supervised to insure accuracy. The operators must be thoroughly trained in properly counting the various work items and spot checks must be made to determine the accuracy.

The employes who are assigned to compile the data must have a thorough knowledge of the work. One minor but important item is to display reminder cards in prominent places during peg counts. Inaccurate peg counts result in improper force provision, with a shortage of operators during certain periods of the day and an overage during other periods, or perhaps a shortage or an overage during the entire day. Your best central office employes should be used for peg count work. Schedules prepared from the peg count data should be drawn so as to eliminate as much excess time as possible. While this might mean assigning more undesirable tours than we would like, it must be done for economy.

Operating load results indicate the proficiency of the operating force and the effectiveness with which forces are adjusted to the volume of traffic and other requirements. The operating load is measured by the overall load, the board load, the per cent supervisory hours of board hours and the per cent auxiliary hours of board hours.

The overall load is the average number of work units handled for each hour worked throughout the day by all employes in the central office. This load indicates the efficiency of the force and administration of the office and is used to adjust the number of employes on duty to meet the fluctuation in traffic volumes.

The board load is the average number of work units handled per hour worked by employes on duty at the switchboard. This load is related to answering service in establishing the proper balance between loads and service. The board load must be watched closely as it is directly related to the overall load.

Per cent supervisory hours of board hours is the relationship between the force on duty at the switchboard and the supervisory force, and is used to maintain the proper and economical balance between the force and supervision.

Per cent auxiliary hours to board hours is the relationship between board hours and clerical, relief and miscellaneous auxiliary hours. It is used in determining and projecting the effect of auxiliary requirements on the overall load and to show the efficiency with which the auxiliary force is provided.

In order to prevent occurrences which adversely affect the grade of service and operating loads, regular attention must be given to:

(a) *Arrangement of facilities.* Are they arranged in the most effective manner for traffic conditions? It is particularly important that equipment be arranged so that each signal is available to as many operators as possible. Watch closely the excessive number of certain positions during the busy hour. Ticket distribution at toll boards and messenger routes improperly laid out can cause inefficiency. The multiple should be arranged so that each operator can easily reach all lines. Equipment should be arranged so the operators can work as a team.

(b) *Supervision of Peg Counts.* Are they accurate or are the results of peg counts only guided guesses? To obtain accurate peg count data, regular supervision must be given the procedures involved in obtaining the data. Where calls are counted manually by means of registers, the central office force

*Garnett is division traffic manager of Virginia Telephone & Telegraph Co., Charlottesville.

should be thoroughly instructed regarding the type of calls to be counted and how they should be registered. Observations should be taken to determine the accuracy of counting and the features requiring special attention. Where calls and work items are counted from tickets, the persons making the record must be fully informed regarding the type of calls and work items to be counted and the classifications in which the different calls and items are placed.

(c) *Planning for meeting force requirements.* Will you have sufficient number of well trained people to meet future requirements at the time they are needed without having to add too many new people at one time? The intake of new people should be gradual so as to have the minimum effect on service and loads. Experienced ex-employes can be used for temporary and occasional work to cover peak requirements. The use of part-time employes who wish to work less than a full week, but who will work full time when required, will permit minor force shortages and surpluses to be met by increasing or decreasing the amount of part-time work. Vacation schedules should be planned in such a manner that the number of employes on the force is kept on a fairly constant level in relation to traffic requirements.

(d) *Proper hourly and half-hourly distribution of operators.* Is your service good some hours and slow others? Maintaining the proper distribution of operators requires continuous observations and analysis of service results and work loads. Should slow answers during certain hours of the day occur regularly over a period of time, the force provided should be adjusted to correct the slow answer condition. Likewise, if the speed of answer is good and the proportion of the time that the operators are occupied is lower than normal during certain hours of the day, the force should be adjusted to correct the condition.

(e) *Supervisory and auxiliary requirements.* Do you have too few or too many supervisory and auxiliary people? Supervisory force requirements in individual central offices vary according to the service and instruction requirements. Normally these are scheduled throughout the day in proportion to the distribution of operators, with allowances being made for differences in force experience, and the character of traffic during different periods of the day. Auxiliary force requirements are dependent upon the volume of auxiliary work and the effectiveness with which it is handled. Particular attention should be given to the controllable factors affecting the auxiliary force requirements, such as the importance and value of records and reports being prepared, the frequency of preparation required, and the efficiency with which they are prepared. The amount of time allowed for completing service orders and preparing intercepting and information records should be increased and decreased with the volume of such work.

(f) *Analysis of the efficiency with which traffic is handled, and correction of ineffective or inaccurate operating.* Is your service bad due to inefficient arrangement of facilities or inaccurate operating, and is corrective action being taken which will be effective?

(g) *Overall load.* Is this established at the right level to provide a proper balance between service and cost?

(h) *Adjustment of the force to daily traffic variations.* Is the load carried each day fairly constant or is it high one day and low the next? Perpetual data should be maintained on daily calls and loads, and peg counts should be made to determine the force required. Particular attention should be given to Saturdays, Sundays and holidays, and to the effect of the weather and local events which cause traffic to fluctuate.

In the traffic department, training plays a more important part than in any other department. There are several reasons for such a statement. In my opinion, the most important is that everything the operator does affects the service rendered our customers. If an operator is not properly trained, the service will be slow, she will make errors and use incorrect phraseology, all of which will result in increased criticisms. Secondly, the operators work with the most expensive facilities in our business, switchboard positions and long distance circuits. If they are not thoroughly trained, wasted switchboard and toll circuit time will result. The result is two-fold: Our expenses are increased by having to use more employes than necessary, and our investment is increased by having to provide more switchboard positions and toll circuits than are necessary. If your traffic expenses are too high and you are receiving criticisms, take a close look at your training.

Loss control plays an important part in controlling traffic costs. Operators who work only a short time after they complete their training are liabilities, not assets. The reasons for operator loss are many and varied. We can reduce the volume of turnover in employes by first bringing into our organization employes with the requisite qualifications for being permanent and good operators, by screening all applicants, following up on references, checking previous employment history and selecting local girls who have an interest in the community.

After we have selected the best applicants and trained them, we must give them good working conditions, sympathetic supervision, good equipment to work with and the best possible hours of work. We must pay our employes good salaries based upon comparable wages for similar skills in the community, and we must instill in them the incentive to do a good job and offer them opportunities for advancement. If we succeed in these, we will find our personnel losses decreasing, our experience factor and work loads increasing and our service improving.

Good supervision is most important not only in rendering good service, but also in controlling traffic costs. Creating and maintaining an efficient, well trained and economical central office force is the responsibility of the central office supervisory people. Particular attention should be given to the use of personnel to insure that all operators are carrying the proper load and that every means of economizing is used. Calls for assistance from the operators should be answered promptly. Work should not be segregated so as to result in an operator not having enough work to do at all times. Excess operators should not be called in unless they are needed, and overtime should be worked only as a last resort.

In summarizing, traffic costs can be effectively controlled by a good force adjustment program, by controlling the operating load, by proper training, by controlling employe turnover and by good supervision. No one of these items will do a thorough job by itself; it will take all of them. Further, you will not see any glaring results, but a sound program of controls which can mean the difference between a net profit and a net loss.

First For Freedom

"The United States was the first country in the history of civilization founded for the preservation of individual freedom. In establishing the 'New Order of the Ages,' the Continental Congress recorded in the Declaration of Independence a list of grievances against the tyrannical King George III, among which were: 'He has erected a multitude of new offices, and sent hither swarms of officers to harass our people, and eat out their substance.' One hundred and seventy-five years later we find a swarming bureaucracy within our borders that threatens individual freedom."— Chester (S. C.) *Reporter.*

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MAINTENANCE TESTING EQUIPMENT

By JOHN A. BRACKEN

MANY TYPES of telephone relays that function properly in a dc circuit will not operate satisfactorily on ac because of the excessive vibration (chatter) of the relay armature.

The current furnished by a storage battery of constant EMF through a circuit of unchanged resistance is dc. Such a current is represented graphically by the curve ABC, *Fig. 1*. The

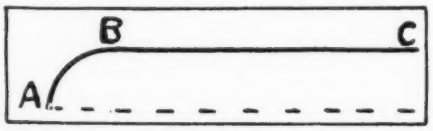

Fig. 1

part AB represents the rise of the current when the circuit is closed, and BC the steady or unvarying current after it has reached its maximum value.

Unlike dc, ac does not have a steady value for any appreciable period of time. Ac is usually pictured as a series of constantly changing waves, each wave representing a change in both its value and direction. Such a wave or curve is graphically illustrated in *Fig. 2*, and is known as the "sine curve" because of its similarity to that plotted for the trigonometric function called the "sine."

In this figure the curve above and below the dotted line shows the rise and fall of values of the current or EMF as the generator rotates between the magnetic field pole pieces P and P1. When the armature is passing through the positions B and D, the current is a maximum; and when the armature is passing through the positions A, C and E, the current or EMF has a minimum value.

Fig. 3 represents a sine curve showing an alternating current EMF which starts from zero and increases in 1/240 second to a maximum positive value, after which it decreases to zero again in another 1/240 second. This constitutes one positive alternation. The EMF now reverses in direction, starting at zero and increasing to a maximum negative value in 1/240 second, and then decreases in value to zero in another 1/240 second and is equal to one negative alternation.

Positive values are considered as those above the time line, and negative values below the line as shown on the

PART 48. The preceding article in this series appeared in the Mar. 15 issue, p. 24.

curve. It will be noticed that after 4/240 or 1/60 second the values of EMF are a repetition of corresponding values during the first 1/60 second. The range of values consisting of the positive and negative alternations constitute one cycle of ac and are usually expressed in "cycles per second" or "frequency."

Ordinary commercial ac has a frequency of 60 cycles per second and is called 60-cycle current. However, ac used in the operation of relays in a

(Please turn to page 30)

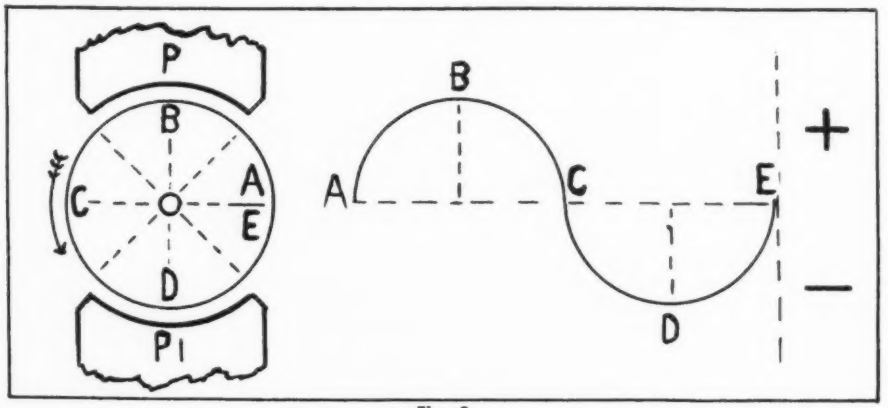

Fig. 2

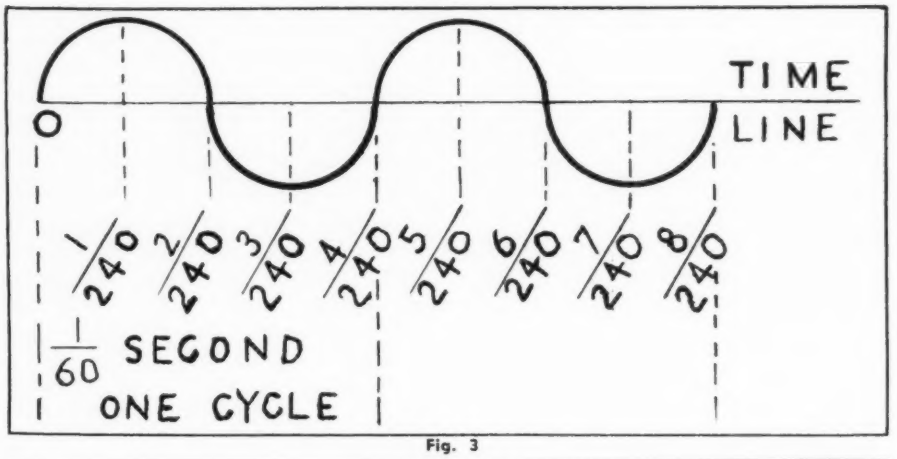

Fig. 3

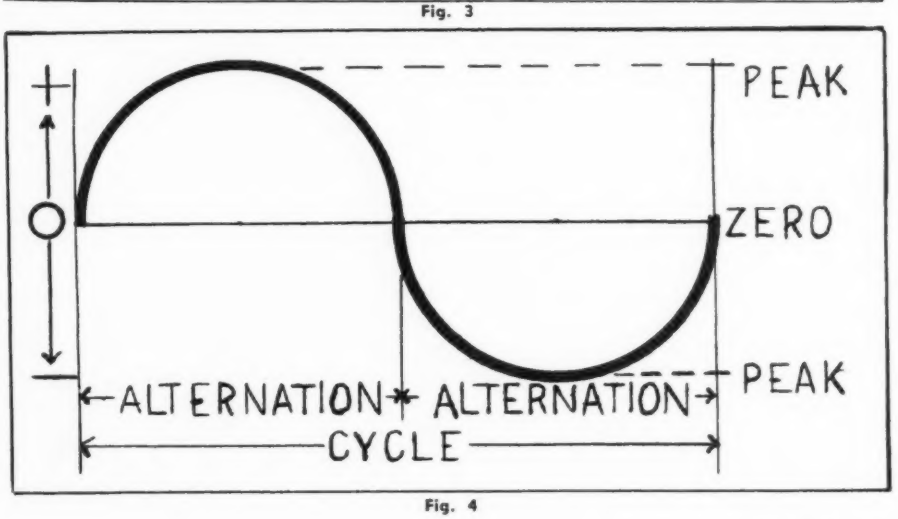

Fig. 4

Turkish Engineers Head Home After Six Months Study Here

TEN young Turkish communications engineers who have been studying United States telephone techniques with Michigan Bell Telephone Co. for the past six months left from New York recently to put their newly acquired know-how into effect in their homeland.

Sponsored by the Mutual Security Agency (MSA), formerly the Economic Cooperation Administration, the training project has been part of a two-way program to help Turkey reorganize its telephone system. A team of retired Bell executives and engineers, including two Michigan Bell men, has been in Turkey since last April, developing plans for expansion of that country's telephone network.

For the past week, the Turkish telephone men have been visiting key communications installations in New York City, including manufacturing and laboratory facilities of the Bell System and International Telephone & Telegraph Co.

The reorganization project was set in motion by a request of the Turkish Ministry of Communications for American technical assistance. The ministry operates the country's telephone, telegraph and postal systems.

MSA's interest in the program is due to its economic and military importance. One of the most strongly anti-communist countries and a key to the free world's Mediterannean defenses, Turkey has but one telephone line to Western Europe—through Bulgaria behind the Iron Curtain. The first telephonic link with London and New York was made in January, on an experimental basis and by radio-telephone.

Efficient operation of the telephone system within the country, which is required before the system can be effectively extended, is also necessary to the industries, the general economy and the government of Turkey.

The 10 engineers, who will work with the American team after their arrival in Turkey about Mar. 1, pointed out the vast differences between their telephone system and the highly-developed system in the United States.

"Here you have laboratories doing research, great manufacturing plants producing equipment on the basis of the research, and operating units providing the service," said Huseyin Cavuslar, a general engineer for the Posts, Telegraph and Telephone (PTT) Administration.

"In Turkey, we just have the operation of the system. Practically all the equipment has to be imported. My first general recommendation would be for Turkey to manufacture those items which would be easier to make—such as copper wire, lead cables, telephone sets and treated poles."

The leader of the group, Adnan Bayboru, senior engineer of the administration, pointed out, in this connection, that Turkey now sells copper to other European countries, then "they make wire and sell it back to us." Bayboru said Turkey would welcome foreign capital for such manufacturing within the country.

Members of the group, who were selected for the study here as future key executives of the Turkish telephone organization, agreed also that standardization of equipment used is another "must" in Turkey.

With some 60,000 telephones in the country, or about three for each 1,000 persons (U. S. figures: 280 per 1,000), the equipment used includes Swedish, Belgian, French, English, German, Swiss and Hungarian-made parts.

This results in difficult operational and maintenance problems. On the main line between Ankara and Istanbul, for example, four types of carrier cables are used. When one of these gets out of order, the central office must ascertain which one is out, so a repairman versed in that particular type of cable can be sent out.

To extend service economically and without too much drain on existing equipment, the introduction of party lines stands high in the list of dozens of proposals which the group will take back to Turkey as a result of their U. S. training.

Bayboru admitted that it would take some public relations work to obtain popular acceptance of the party line, largely because it would be a new idea in Turkey. On the other hand, the pent-up demand for new service may make multiple lines more acceptable. In the major cities of the country, there are at least as many people waiting for service as there are subscribers.

On the technical side, another feature of the American telephone system which impressed the group was mentioned by Omer Sevkal, PTT technical inspector.

Sevkal hopes to see "community dial offices" in Turkey. "In small towns here you have 'CDO's' or phone exchanges that do not require personnel," he said, "and which are automatically operated and require only weekly inspections ordinarily."

Both Sevkal and Bayboru praised the economical U. S. practice of having both power lines and telephone wires

CLEO F. CRAIG, president of American Telephone & Telegraph Co. (left, seated), chats with a group of young Turkish communications engineers who recently spent six months studying American telephone techniques with Michigan Bell Telephone Co. The visit was part of a project sponsored by the MSA (Mutual Security Agency) under which a team of retired Bell executives and engineers also visited Turkey to develop preliminary plans for reorganization of country's telephone system. L. F. BILBY and B. E. OSGOOD, (standing, third and fourth from left), both of Michigan Bell Telephone Co., accompanied the group on their training tour.

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on the same poles. They also would like to see the larger American-size cross-arms used, which carry 10 wires instead of the four carried by the smaller model used in Turkey.

Some of the other ideas being carried back to Turkey by the engineers, include:

The use of gas pressure to test cables.

Routine checking, by instrument and by eye, of outside equipment to avoid or reduce failure during storms.

Coordination or consolidation of telephone lines of other government agencies and private firms which in Turkey operate their own telephone systems within buildings.

Redistribution of all telephone sets, placing those of poorer quality close to central offices and those of better quality near the extremities of the telephone network.

Use of radio-telephones, powered by batteries, in the small villages which are now without service and which cannot now be serviced by extension of lines due to shortage and cost of cable and wire.

Increasing the number of coin telephones and booths to provide service for more people with comparatively little added equipment.

Use of clay ducts instead of iron ducts to carry underground lines to reduce costs, save foreign exchange now used to purchase iron ducts, and improve conduction of current by preventing electrolysis.

Increasing the number of circuits carried by each carrier cable by new techniques.

Use of the operator dialing method in connecting toll calls between the larger cities, so the person making the call will remain on the line while the call is being placed.

Introduction of service representatives to improve service and customer relations.

The program was directed by Bruce E. Osgood, supervisor of general personnel activities of Michigan Bell's personnel relations department.

Other members of the team from Turkey were Cezmi Saglam, Necmi Ozgur, Hayrettin Pakel, Rifat Toplu, Turhan Zirh, all of Ankara; Nusret Ercil of Istanbul, and Vehbi Basar of Sivas.

Arkansas Ruling Affects *Rate Procedures*

IN AN opinion of far-reaching significance in the future handling of Arkansas public utility rate cases, the Arkansas Supreme Court held on Feb. 18 that no public utility has a vested right to any particular method of valuation.

Modifying findings of the Arkansas Public Service Commission and Pulaski County Circuit Court, the high state tribunal trimmed $428,591 from a $3,605,591 rate increase which had been granted Southwestern Bell Telephone Co. on Jan 20, 1951. Effect of the court's ruling was to sustain a minority opinion by Commission Chairman Scott Wood at the time the commission authorized the increase.

The company has been collecting from its subscribers an increase amounting to $4,600,000 annually since September, 1950. It will now have to refund or adjust its accounts for all collected over the sum fixed by the state supreme court.

Meanwhile, the company already has indicated it intends to seek another rate increase of an amount not yet revealed.

Besides ruling that no public utility in Arkansas has a vested right to any particular method of valuation, the court held that the commission and the lower court erred in determining the company's rate base as of Dec. 31, 1950, instead of Sept. 30, 1950; that the company has no cause for complaint about the rate base until it "makes full and complete disclosure of all matters affecting its operations"; and that the cities of Little Rock and Fort Smith may further develop their arguments before the commission that the rates fixed for them by Southwestern Bell are discriminatory.

The high state court's opinion, written by Justice Ed F. McFaddin, was based on the most voluminous transcript and pleadings ever filed with the court. The case had been under consideration for months.

After the commission issued its order, the cities of Fort Smith, Little Rock, Benton, Earle, Heber Springs, Magnolia, Malvern, Paragould, Pine Bluff and Van Buren appealed to Pulaski Circuit Court for a review. The cities, with 45 other municipalities, subsequently intervening in the case, contended the rates permitted were excessive and in some instances discriminatory.

Southwestern Bell then filed a cross appeal, contending it should have obtained the full $4,600,000 it sought and that it was not being allowed the normal 6 per cent return on its investment.

Pulaski Circuit Court upheld the commission on all counts, after which the cities appealed to the state supreme court and the company again filed a cross appeal.

In its opinion, the state supreme court declared:

"A tremendous factor in determining a rate depends on the method or methods used to calculate the investment of a utility.

"In the case at bar, the commission determined that: 'A proper rate base is the original or book cost, less the depreciation reserve.' To this figure, the commission added amounts for what it considered necessary 'cash working capital,' and 'material and supplies' . . .

"The next steps in the commission's problem were (1) to determine what net rate of return Southwestern should have on its 'rate base,' and (2) to determine the increase in revenue necessary to yield such net rate of return. The commission fixed 6 per cent as the rate of return; and then, to determine the increase necessary to allow 6 per cent . . .

"The effect of this last stated calculation was to allow Southwestern an increase of $3,605,591 . . .

"If the department's order is supported by substantial evidence, free from fraud, and not arbitrary, it is the duty of the courts to permit it to stand, even though the courts might disagree with the wisdom of the order . . .

"As regards the review sought by Southwestern, we (find) . . . that no rights under the United States or state constitutions have been invaded.

"Evidence was shown as to valuations, expenses and earnings of Southwestern, as of Sept. 30, 1950. . . . (but) figures as to the Dec. 31 valuations were mere guesses or approximations . . .

"We recognize that a utility rate must be reasonable and just as to the present, and also for a reasonable time in the future, and that the commission may—in order to forestall subsequent applications for rate increase—allow a reasonable figure for anticipated extensions to be made in the future. But to anticipate reasonable future extensions is one thing, and quite

(Please turn to page 30)

PLANT MAN'S QUIZ

Q. We would appreciate it if you would please describe a station wiring plan.

A. Station wiring plans, sometimes referred to as key equipment, consist of two or more telephone stations and associated keys. The keys place convenient operating features at the disposal of the customer. The special equipment to be provided at any station depends upon the operating features desired. The principal features generally furnished are described as follows:

(1) The pick-up is a key-operated feature by which the user transfers the talking set to any one of two or more lines.

(2) Intercommunication is a feature that permits conversations between wiring plan stations without utilizing any of the central office lines associated with the wiring plan.

(3) The key cut-off feature permits the user of a master station to connect or disconnect any controlled station associated with the same line.

(4) The master stations are the principal stations in the wiring plan. All wiring plans must have at least one master station.

(5) Controlled stations do not have all of the operating features provided at a master station and are often dependent upon the master stations for some of their functions.

The various features described above may be assembled in a key plan, as required, to meet the needs of a particular customer.

• • •

Q. Please explain a convenient method of housing repeating coils when they must be pole-mounted.

A. There is available a mounting device, similar to a cable can, that can be procured at a reasonable cost from your telephone supply house. This device has a capacity of from 1 to 4 coils and is equipped with the necessary fuse and open space cut-out protectors.

• • •

Q. Will you please explain how a tone test set may be used to identify working cable pairs without interfering with the service?

A. The test set designed for this service consists of two units, one of which produces a high frequency tracing current and the other a probe, detector-amplified and loud speaker. Because of the high frequency tracing signal used, this apparatus has a limited range, usually about six miles over non-loaded conductors, or between loading coils when either voice frequency or carrier coils are used. A vacuum tube oscillator is used which generates a 250-kilocycle tracing current modulated at 500 cycles.

The 250-kilocycle frequency is well above the usual frequencies used for telephone transmission. The output circuit of this set is so designed that no appreciable bridging loss occurs when connected to working exchange or toll conductors.

The detector-amplifier first amplifies the tracing signal picked up by the probe, converts it to an audible signal and amplifies it to operate the loud-speaker. A loud-speaker is generally used instead of a receiver because a relatively high intensity audible tone is delivered by the set under some conditions.

• • •

Q. In view of the present copper shortage, do you think we will be justified in the use of 26-gauge cable in our distribution system?

A. This type of fine-gauge cable has been used to advantage in many exchanges for a number of years. The accepted practice is to start the 26-gauge cable from the central office where larger cables are involved. Then, if there is any danger of exceeding the maximum resistance of loops, smaller and coarser gauge cables may be used on the fringe areas. This arrangement will reduce copper requirements to a minimum.

Twenty-six-gauge cable runs about 460 ohms per circuit mile. If your central office equipment will handle 1,000-ohm loops, a little over two miles of this fine-gauge cable can be used without exceeding the resistance limits of the loops. If, on the other hand, a part of the distance makes use of coarser gauge cables, a much greater distance may be covered.

• • •

Q. Will jute protection prove adequate for protecting buried cable?

A. The use of jute-protected cable is not usually recommended at the present time. Jute gives very little, if any, protection against corrosion or mechanical trouble. In most cases, the use of double steel tape-armored cable for buried installation is considered justified in view of the slight increase in cost over jute protection.

We are reliably informed, too, that polyethylene-insulated and jacketed cable has proved economical and highly desirable on numerous buried cable jobs. This type of cable is highly resistant to corrosion and is, therefore, well suited to buried type installations.

• • •

Q. We are wondering whether you think the magnesium extension-type ladder will prove suitable for telephone use?

A. Although this type of ladder is light in weight, strong and long-lasting, there are, however, many who object to its use on telephone systems because of the fact that it is a conductor and may prove a hazard around power circuits.

There appears to be a probability that fiber glass ladders will eventually be developed which should prove highly desirable as they are light in weight, strong and possess good insulating qualities.

At the present time, it would seem that the wooden ladder is your best bet.

• • •

Q. Please explain how the carbon arc may be used in the repair of small sheath openings found in aerial cable.

A. Although this method was very popular a few years ago, it is currently seldom being used. While it was quite effective, the cumbersome storage battery required for its use undoubtedly caused it to lose popularity.

The acetylene torch is now generally used to make repairs of this nature. Considerable skill in the use of the torch has been developed by present-day cable splicers and they turn out some fine work with a minimum of effort and expense.

When the torch method is used to close splices, a substantial savings in critical solder may be realized over that required when a joint is wiped.

Boring Subject

Are you a bore?

If your best friends won't tell you, the invention of a University of Oklahoma professor will.

The tattle-tale device is an electromagnetic-movement meter developed by Dr. Elwood A. Kretsinger, assistant professor of speech. The audience-reaction machine measures the amount of fidgeting or physical movement in a group of listeners.

XUM

'Biggest Little Association'

Kentucky Independents Convene For Annual One-Day Meeting

By R. C. RENO

THE Kentucky Independent Telephone Association—which Kentuckians call "The Biggest Little State Telephone Association in the U. S."—held its one-day annual convention on Mar. 4 in Lexington. More than 160 representatives of operating companies and suppliers attended the meeting.

G. B. Foscue Jr., president of the association and general manager of Consolidated Telephone Co., Florence, presided over the meeting and in his annual report traced the activities of the association during the past year.

In his address he recommended that the association and all telephone companies appeal to the proper state authorities, asking them to give adequate notice to utilities before road widening or construction projects are started. Foscue brought out that, in many cases, right-of-way stakes for road projects have not been driven until bulldozers are on the job ready to go to work, which has allowed telephone companies practically no time to move their pole lines.

He also called for continued effort of the telephone industry to obtain reductions in, or elimination of, federal excise taxes on telephone service.

H. J. HUETHER JR.

Secretary-Treasurer M. V. Shepherd, Ashland, gave the financial report of the association and E. S. Blackwell, Lexington, chairman of the Small Company Problems Committee, reported on its activities in assisting the small companies over the state.

"Further rate increases in 1952 are inevitable for telephone companies if they are to meet increasing operating costs and earn a sufficient return to attract new capital for expansion and improvement of their plants," John R. Jones, Columbus, O., attorney, told the convention.

Jones pointed out that the number of telephone rate cases have been greater than all other utilities because of the economic fact that the telephone business is one of increasing costs and diminishing returns whereas most other utilities, especially the gas and electric businesses, are ones of decreasing costs and increasing returns.

However, he predicted a rise in the number of rate increase applications for other utilities because higher taxes and other increased costs have "finally caught up with them" and they will face the need of increased revenue. In view of this situation, Jones urged telephone companies planning rate increase petitions to file them with the commissions as early as possible so their cases will not be unduly delayed by the commissions' consideration of other utility cases.

Jones criticized some telephone companies for failing to apply for adequate rate increases in their original petitions. He urged that all companies ask for the proper amount of additional revenue in order to minimize or avoid the necessity of filing subsequent applications.

He stressed the importance of properly preparing for rate cases so that full and adequate information of the company's operations can be presented to commissions in the shortest possible time. He told of the advantages of having direct testimony prepared in writing in advance for introduction at rate hearings, and stated that many commissions permit this procedure as it saves the time of both the companies and commissions and facilitates cross-examination.

Mayme Workman, Springfield, Ill., executive secretary, Independent Telephone Pioneer Association, and traffic editor of TELEPHONY, talked on "Traffic Truths and Fallacies." "The fundamentals of telephony never change. They are the same today as they were in 1907 when I started in the telephone industry. The objective of the telephone company and its employes in the early 1900's was to render courteous, prompt and dependable telephone service—and this is our objective today," Mrs. Workman said.

"There has been a tremendous change in operating methods and equipment through the years. The telephone industry has kept, and it is keeping, pace with progress and development in these United States," she stated.

Mrs. Workman pointed out the essential traffic truths from the standpoint of management and traffic personnel and gave some timely suggestions for achieving the desired results. The speaker touched upon the fallacies in the traffic department and enumerated a number of outstanding items which have a detrimental effect upon the rendering of pleasing, dependable and prompt telephone service to telephone customers.

"More and Better Friends" was the subject of an address by Frank M. Malone, Atlanta, Ga., vice president of Southern Bell Telephone & Telegraph Co. Faced with so many problems, especially those having to do with rate increases, "held" orders for telephone service, and applications for regrades of service, Malone stated that it is of

G. B. FOSCUE JR.

increasing importance that the telephone business have more and better friends, or as he paraphrased it—the importance for the industry to do a real public relations job.

Among the essentials for putting together a good public relations program, Malone emphasized two fundamentals as follows:

"The quality of the product we sell will always be number one. Everything else depends on this. All other efforts to improve the public's opinion of our kind of business would avail us very little unless our quality of service is good. And let's not forget that it is never good unless the public thinks it is good.

"The second fundamental is a complete program of employe education. Our public relations is what everyone in the business from top to bottom says and does in dealing with the public. Every employe *must* be made to feel that he or she *is* the company.

"We, of course, recognize that perfection in meeting public opinion is impossible, but that is all the more reason why eternal vigilance is necessary.

"We must tell the public over and over again, as simply and clearly, as interestingly and convincingly as we know how, that this business has four major concerns:

"The best possible service.

"The lowest possible cost.

"Keeping the business financially sound.

"Providing fair treatment of employes.

"The character, experience and the wisdom with which these problems are administered will be the test of our success. If we continue to deserve and have public confidence, we will continue to have freedom enough to do our job well. If we fail in character or wisdom to deserve and hold this public confidence, we will be hampered by rules and regulations to such an extent as to lose control of our business.

"We cannot expect that our performance will be perfect. But so long as we understand the kind of public trust we have, with its countless ramifications, and so long as we stay "tuned in" with the public's opinion of us, and remain the good citizen we have been in the past, we will then be in a position to effectively cope with the increasing magnitude of the problems yet to come.

"Despite all the headaches and the hurdles, we have made a magnificent record. And who can doubt that our human capacities will in the future be tested to the limit? Not I. And I'm sure you share with me a faith in the future and utmost confidence in our own ability to direct this business and do a better telephone job under our present free enterprise system than might be accomplished in any other way."

Kelley McNish, Bristol, Tenn., president of Inter-Mountain Telephone Co., and director of the United States Independent Telephone Association, represented the USITA and addressed the meeting.

CUTIES ***By E. Simms Campbell***

"Speak louder, please! I keep the telephone on top of my radio."

(Courtesy King Features Syndicate)

McNish reported on the activities of the national association and called for the support of both state and national telephone associations in their work to protect and further the welfare of the entire industry.

He warned his listeners that as a regulated business the telephone industry should strongly oppose the levying of any further taxes against it. He stated that taxes are already taking a big part of each dollar of revenue of telephone companies and each tax increase just means that the public has to pay higher rates. Also, he pointed out that increased taxes reduce the net returns of telephone companies, which, in most cases, are already inadequate to attract new capital to cover necessary expansion and improvement of telephone service.

The convention re-elected the following directors: W. R. Bacon of Glasgow; Earle Blomeyer of Elizabethtown; Louis Cox of Frankfort; G. B. Foscue Jr. of Florence; H. J. Huether Jr. of Lexington; D. H. Lloyd of Lexington; H. S. Poage of Augusta, and M. V. Shepherd of Ashland.

Bernard LeBaron, Lexington, was elected a director to succeed S. S. Long Jr., Lexington.

The directors elected the following officers: Mr. Huether, president; Messrs. Cox, Bacon and Foscue, vice presidents, and Mr. Shepherd, secretary-treasurer.

V V

>> Since World War II the Bell System has had to raise 4½ billion dollars of new capital to meet the demand for improvement and expansion of its services. This is more than its entire capital at the end of the war.

XUM

Storage Batteries

In selecting proper battery for telephone installation, purchaser should consider requirements of his particular exchange and ratio of cost to potential life of battery which will meet these requirements.

Generally, life of a battery is determined by two factors: type of plates and method of charging.

There are two general types of plates: Planté and Faure. Both types have been proved in telephone work; however, long life is generally conceded to Planté type, while Faure type usually has lower unit capacity cost.

Planté plates are formed from lead with active material electrochemically deposited on ribbons or grooved strips. Faure (or pasted) plate is formed by mechanical pasting of active material into open spaces of grid-shaped lead-antimony sheet. This construction is used by virtually all manufacturers of Faure cells.

The following listings of storage batteries are confined to the sealed glass jar type which, owing to its construction, completely confines the spray within the cells. This eliminates need for special compartments, trays or battery rooms.

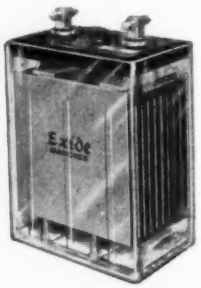
Exide Batteries

There are two types of Exide batteries used in telephone service: the Exide Manchex (Planté type) and the Exide Tytex (Faure type). These are furnished in capacities to meet virtually every requirement.

In all types listed, the cell covers are sealed at the top of the jars and have spray-proof vents.

A thermometer and a hydrometer syringe will be added to all battery orders for less than 60 cell batteries of 40-ampere-hours or larger capacity.

Exide-Manchex Type
Types DME, EME and FME



Type DME

The Exide-Manchex type is more durable than the Exide Tytex (Faure) type because of its rugged plate construction.

The Manchester positive plate consists of a lead-antimony alloy grid, perforated with openings into which the pure lead buttons of active metal are forced.

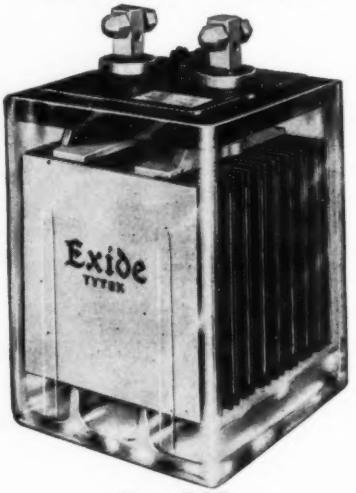
This alloy grid resists the forming action of the current during charge and discharge and therefore retains its strength, shape and dimensions throughout the entire life of the plate.

Its heavy-Permanized negative plate is constructed of a lead-antimony grid or framework of interlocking rib and bar design holding the active material locked in place by the horizontal bars.

Single Cell Units

Type and Size	Amp.-Hr. Cap. at 8-Hr. Rate to 1.75 Final Volts	Approx. Dimensions, In. Length	Width	Height	Approx. Ship. Weight Pounds
DME-5A	40	3 1/16	7 13/16	12 5/8	29
DME-7A	60	3 7/8	7 13/16	12 5/8	35
DME-9A	80	4 11/16	7 13/16	12 5/8	42
DME-11	100	5 1/2	7 13/16	12 1/2	50
DME-13	120	6 5/16	7 13/16	12 1/2	59
DME-15	140	7 1/8	7 13/16	12 1/2	66
DME-17	160	7 15/16	7 13/16	12 1/2	73
EME-11	200	6 1/8	9 15/16	15 1/4	96
EME-13	240	6 7/8	9 15/16	15 1/4	113
EME-15	280	7 3/4	9 15/16	15 1/4	126
EME-17	320	8 5/8	9 15/16	15 1/4	138
EME-21	400	10 3/8	9 15/16	15 1/4	165
EME-25	480	12 1/8	9 15/16	15 1/4	191
FME-15	560	8	13 5/16	19 9/16	234
FME-17	640	8 7/8	13 5/16	19 9/16	259
FME-21	800	10 5/8	13 5/16	19 9/16	308
FME-25	960	12 3/8	13 5/16	19 9/16	373

Exide-Tytex Pasted Plate Types
Types DOE, EOE and FOE



Type DOE

Used where service requirements are light. Active material of both positive and negative plates is pasted on both sides of lead-antimony grid or framework of interlocking rib and bar design, and locked in place by horizontal bars.

Type and Size	Amp. Hr. Cap. at 8-Hr. Rate to 1.75 Final Volts	Approx. Dimensions, In. Length	Width	Height	Approx. Ship. Weight Pounds
DOE-5A	50	3 1/16	7 13/16	12 5/8	27
DOE-7A	75	3 7/8	7 13/16	12 5/8	33
DOE-9A	100	4 11/16	7 13/16	12 5/8	39
DOE-11	125	5 1/2	7 13/16	12 1/2	47
DOE-13	150	6 5/16	7 13/16	12 1/2	55
DOE-15	175	7 1/8	7 13/16	12 1/2	61
DOE-17	200	7 15/16	7 13/16	12 1/2	68
EOE-13	240	6 1/8	9 15/16	15 1/4	91
EOE-15	280	6 7/8	9 15/16	15 1/4	105
EOE-17	320	7 3/4	9 15/16	15 1/4	116
EOE-19	360	8 5/8	9 15/16	15 1/4	125
EOE-23	440	10 3/8	9 15/16	15 1/4	145
EOE-29	560	12 1/8	9 15/16	15 1/4	176
FOE-17	608	8	13 5/16	19 9/16	210
FOE-19	684	8 7/8	13 5/16	19 9/16	229
FOE-23	836	10 5/8	13 5/16	19 9/16	272
FOE-29	1064	12 3/8	13 5/16	19 9/16	336

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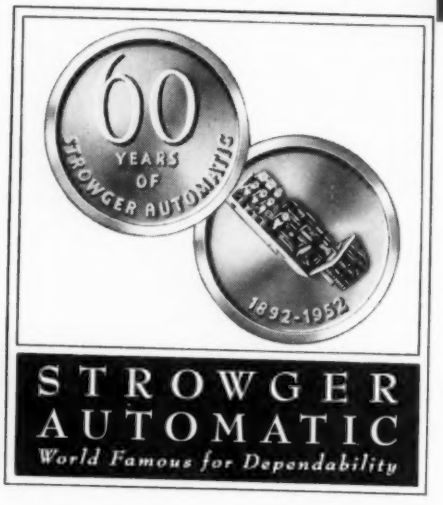

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XUM

Courts and Commissions

New Jersey Company Seeks First Increase Since 1937

New Jersey Telephone Co., Flemington, on Mar. 6 filed new rate schedules with New Jersey Public Utilities Commission, to become effective Apr. 15, according to Charles P. Kirby, general manager.

The company serves Hunterdon and parts of Warren and Morris counties and a portion of Bucks County.

Kirby said this would be the company's first request for a rate increase since 1937. He attributed the need to increasing demands made upon the company by spiraling prices, wages and taxes.

Kirby said that the organization's total expenses have increased 437 per cent since 1940, as opposed to a total revenue increase of only 310 per cent.

He said that in the same period the number of telephones in service had increased by 266 per cent, plant investment is up 333 per cent and capitalization has risen 271 per cent.

According to the company's proposal, a blanket increase will not be sought. The rise will vary within the various telephone exchanges.

V V

N. Y. Increase Would Add Less Than Cent Daily to Bills

Increased rates granted to New York Telephone Co. by New York Public Service Commission (TELEPHONY, Dec. 15, p. 32) would add less than a penny a day to the average residence bill, Keith S. McHugh, company president, stated recently.

"The new rates went into effect on Mar. 14. They add less than four per cent on the average to telephone bills, and bring our overall price increase in the last 22 years to only 15 per cent," McHugh said.

The new rates will provide an estimated additional revenue of $20,700,000 annually. The company had requested $25,400,000.

The difference between the sum requested and that awarded by the commission will be made up, the commission said, from a recent adjustment in the division of interstate toll revenues by American Telephone & Telegraph Co. and its subsidiaries. New York Telephone Co.'s share in this division will be increased by about $4,700,000, according to the commission.

V V

Increase in Revenues of 20% Granted Kansas Independent

American Telephone Co., Abilene, Kan., on Mar. 12 was authorized to increase its annual gross revenue $176,326 through rate increases in 64 Kansas towns. The company, second largest in Kansas, serves about 30,000 customers.

The authorization will give the company an overall 20 per cent annual revenue increase, officials stated.

V V

North Dakota Company Rate Increases Authorized

In authorizing North Dakota Telephone Co., Mohall, to raise its rates recently, the North Dakota Public Service Commission said new rate schedules have been approved for service in two groups of towns.

Group 1 new rates, applying to Beulah, Maxbass, Mohall, Tolley, Towner, Turtle Lake and Westhope, are: Business, one-party, $6.50, up from $4.50; two-party, $5.00 from $3.50; residence, one-party, $4.00 from $2.75; four-party, $2.50 from $2.00, and rural metallic, $4.25 from $3.50.

Group 2 rates, applying to Columbus, Flaxton, Lignite, Stanton, Sherwood, and Washburn, are: Business, one-party, $5.50; two-party, $4.25; residence, one-party, $3.50, and four-party, $2.25. The present rates for Columbus, Flaxton and Lignite are: Business, one-party, $3.75; two-party, $2.75; residence, one-party, $2.75; and four-party, $2.00.

V V

North Dakota Hearing Mar. 18

A hearing on requested rate increases by Red River Valley (N. D.) Telephone Co. will be held on Mar. 18 in Mayville, N. D.

Pennsylvania Bell Increase Postponed to September 7

A $32,355,600 increase in telephone rates for Bell Telephone Co. of Pennsylvania has been postponed until at least Sept. 7.

Pennsylvania Public Utility Commission on Mar. 6, acting on requests by the city of Pittsburgh and others, held back the increase, which was to take effect on Mar. 7 (TELEPHONY, Jan. 19, p. 34).

The commission ordered a six-month delay, an investigation into the reasonableness of the proposed increase and hearings on the request in the near future.

Bell Telephone Co. of Pennsylvania, in applying for the increase, said 2 million subscribers would be affected.

Nickel telephone calls from pay stations would go to 10 cents.

Pittsburgh took to court an increase of $17,960,000 granted Bell by the commission in October, 1949. Although the increased rates are still in effect, the courts have not returned a decision.

V V

North Carolina Independent Ordered to Defend Service

Pender Telephone Co., Burgaw, N. C., was ordered by North Carolina State Utilities Commission on Mar. 12 to show cause why it should not improve and expand its service.

The order, setting a hearing at Burgaw for Apr. 25, was issued after Southern Bell asked the commission to rescind an order requiring it to provide service in a section of Pender County, in which Burgaw is located.

V V

Florida Anti-Strike Act Ruled Unconstitutional

Florida's public utility anti-strike law, calling for compulsory arbitration of such labor disputes, was ruled unconstitutional by Circuit Judge Grady L. Crawford in an opinion handed down on Mar. 1 in Miami.

The decision was given in a court action growing out of the indictment of two Miami bus drivers' union mem-

bers who ignored the anti-strike act and contended it was unconstitutional.

W. O. Frazier, union president, and D. Q. Lee, a bus driver, refused to recognize the action of Governor Warren in invoking compulsory arbitration during a recent 17-day strike of Miami and Miami Beach bus drivers.

Explaining that his ruling was based on a U. S. Supreme Court opinion of February, 1951, holding a similar Wisconsin law unconstitutional, Judge Crawford said: "So far as I can see, the supreme court decision in that case is squarely in point so far as the Florida act is concerned."

Enacted in 1947, the Florida law provides that when a stalemate arises in any labor controversy involving public utilities, either party in the dispute may ask the governor to invoke the act, thus substituting compulsory arbitration for collective bargaining.

"This case," Judge Crawford stated, "seems to fall squarely within the purview of the recent decision of the United States Supreme Court handed down on Feb. 26, 1951.

"In that case the Supreme Court held invalid a Wisconsin act attempting to regulate public utilities. The Florida act involved here would almost seem to have been based on the Wisconsin act, the pertinent sections of each act are so similar. The question presented to the supreme court is identical with that presented here."

Concluding that the Florida law is unconstitutional, Judge Crawford dismissed the charges against Frazier and Lee.

V V

Indiana Independent Seeks Increase for Three Exchanges

Uniondale (Ind.) Rural Telephone Co. has petitioned Indiana Public Service Commission for a rate increase to boost its annual revenue $6,834.

The company, which has exchanges in Uniondale, Zanesville and Ossian, serves 996 subscribers in Wells and Allen counties.

The company reported an operating loss for each of the last four years. It said the 1951 loss was $172 and the largest was $3,897 in 1950.

V V

Oregon Independent Sold

Oregon Public Utilities Commissioner Charles H. Heltzel on Mar. 11 approved the sale of Umpqua Valley Telephone Co., Myrtle Creek, and its other exchanges at Canyonville and Riddle, to California-Pacific Utilities Co., San Francisco.

Pennsylvania Independent Files Suit Against Gas Company

A gas blast which demolished the Pennsylvania Telephone Corp.'s Westmont exchange in Johnstown on Dec. 25, 1950, has resulted in a $310,634 damage suit against the Peoples Natural Gas Co., Pittsburgh.

The suit charges the gas company with allowing its main to become "broken, defective, corroded and worn out."

The telephone company had erected a new brick building and installed a dial telephone system in the Westmont exchange. The company, an Independent, serves Johnstown, Franklin, Oil City, Erie, and extends into New York State.

The blast, which practically leveled the brick structure, occurred about 9 p.m.

In filing the case, Attorney John E. Evans, Jr. charged Peoples was negligent in permitting its main to become defective.

Attorney Evans listed damages to the building at $26,254, damages to the complicated electrical dial equipment at $205,585, loss of service to customers at $30,963, and reprinting of its telephone directories at $34,344. Other expenses brought the total to $310,634.

Evans said the gas company's main line was in such condition that gas seeped into the exchange building where it was ignited and exploded.

V V

Wisconsin Cooperative Seeks To Buy Seven Companies

Wisconsin Public Service Commission on Mar. 4 heard the application of Chequamegon Telephone Cooperative to buy seven small telephone companies (TELEPHONY, Dec. 29, p. 29).

The co-op also wants authority to increase rates, extend service and convert to dial.

V V

Indiana Commission Conducts Accounting Conferences

Indiana Public Service Commission is conducting conferences to instruct Class D telephone companies (those having annual revenues of less than $50,000) in the necessary procedure of keeping accounts to conform to the "Uniform System of Accounts, Class D Telephone Companies" recently adopted by the commission.

Carl Cecil, chief accountant of the commission, and W. F. Lebo, the chief engineer, are in charge of the meetings. They stress the importance of adequate and proper accounting and the simple requirements to be followed by a small telephone utility in setting up and keeping records of plant, revenues, expenses, depreciation and income.

Seven of these meetings are being held so that every Class D company will have the opportunity of receiving instructions in the new accounting practices now in force and which will be rigidly enforced by the commission. In late February there were meetings at Salem, Versailles, Petersburg and Brazil. March locations included Columbia City, Monticello and Indianapolis. Formal notice of each meeting is issued by the commission and the meetings are held in county court houses or other public buildings.

In addition to the smaller companies, the large companies of each meeting area are attending these conferences so that they may offer assistance to both the commission and the Class D companies in this important project. The Indiana association is also availing itself of the opportunity afforded at these meetings of further contact with the smaller companies, acquainting them with the work and efforts of its Small Company Problems Committee and urging that the larger companies cooperate with the smaller units in solving financial, accounting or engineering problems.

V V

Kansas Company Granted Raise; More If It Improves Plant

Clearwater (Kan.) Telephone Co. was given permission to increase gross annual revenue by $4,046 on Mar. 12 by Kansas Corporation Commission.

The commission said the company could raise an additional $2,773 gross annual revenue as soon as line, switchboard and other service improvements were made.

V V

Unattended Business Rate OK'd

Herman (Neb.) Telephone Co. was granted permission to add a net rate of $3.50 a month for unattended business telephones. The rate will apply to those business houses where use is intermittent, and will be on a part-time basis. Most of the time there is no one present to call or be called. The management stated that a full-time rate should not be charged under such circumstances, and Nebraska Railway Commission agreed.

V V

Indiana Increase

An annual rate increase of approximately $4,500 for Hendricks Telephone Corp., Clayton, Ind., was authorized recently by Indiana Public Service Commission.

XUM

Wisconsin Opinion

Commissioner Rips U.S. Taxes For Increasing Utility Rates

JOHN DOERFER, chairman of Wisconsin Public Service Commission, said on Mar. 11 that the federal government is responsible for rising utility costs in Wisconsin.

"The federal government takes 52 per cent of the net profits of a utility," Doerfer said in a letter to Arthur H. Miller, instructor in agricultural economics at the University of Wisconsin.

Miller complained in a letter to the commission that he saw no justification for increasing telephone or bus fare rates.

"If we did set utility rates in line with other inflationary prices," Doerfer said, "most of them would have been doubled today, in some cases tripled."

Doerfer said state and federal taxes take 54.8 per cent of a utility's net profits, which was why the commission had to increase the rates of Wisconsin Telephone Co. $3,705,000 to increase the firm's net income $1,563,000.

On the same date the *Wisconsin State Journal* carried the first of a series of two articles by the United Press on expansion of utility service and the difference in rates for Wisconsin utilities from pre-war 1939 to 1951. The article quoted H. J. O'Leary, Wisconsin Public Service Commission rate expert, who explained the need for higher rates by telephone companies. The *Journal* article follows:

"Telephone bills will be up just about as much as the cost of living under new rates for two of Wisconsin's largest telephone firms, a state Public Service Commission official said Monday (Mar. 10).

"Telephone rates in Wisconsin rose only 47 per cent from pre-war 1939 to the end of 1951, while the cost of living went up to 88 per cent.

"But O'Leary, PSC rate expert, said boosts soon to go into effect for the Wisconsin and Commonwealth Telephone companies will bring their rates up about as much as the cost of living has risen since 1939.

"Sixty per cent of costs for telephone firms are for labor, O'Leary explained, while some other utilities rate labor as only 20 per cent of their expenditures.

"Since labor costs took one of the biggest upward jumps—158 per cent—since 1939, a large labor force means higher bills for a firm and eventually for its customers.

"There's a time lag until the boosts take effect, since utility rates must be approved by the state public service commission. This regulation also tends to stabilize the utilities and limit their profits, O'Leary said.

"Another reason for the telephone rate boosts is that income from each telephone doesn't go up almost automatically during an inflationary period because almost all Wisconsin telephone charges are flat rates. There's a fixed charge for most telephones, no matter how many calls are made on them.

"Electric bills, on the other hand, are based on how much power the consumer uses. They generally rise as the customer's income goes up, and he invests in dishwashers, television sets, and other luxury items that use more electricity.

"On the contrary, expansion to include more customers costs the telephone firms more money than they take in through the extra users, O'Leary said.

"Consumption has gone up so much in some of the other utilities that it has helped to offset an increase in the cost of labor and raw materials, according to O'Leary.

"Better utilization of gas and water facilities is another reason why those prices could remain fairly stable," O'Leary said. "Installation of more efficient generators has helped to cut electric costs, despite the fact that some of the new equipment cost twice as much as that installed 15 or 20 years ago.

"Depreciation also is not so high in other utilities as it is in the telephone industry. As an example O'Leary cited cast iron water mains tested after 150 years' use and found still in good condition, although sometimes outmoded in size."

V V

OK Canadian Bell Issue

The Board of Transport Commissioners has granted Bell Telephone Co. of Canada authorization to issue 1,580,000 shares of common stock. The board set a minimum price of $31.50 for the issue of $25 par value shares. The shares will be sold to company stockholders in the ratio of one share for every five held.

V V

Nebraska Hearing April 4

The application of Martell (Neb.) Telephone Co. for a 25 cent rate increase on all classes of service will be considered by Nebraska Railway Commission on Apr. 4.

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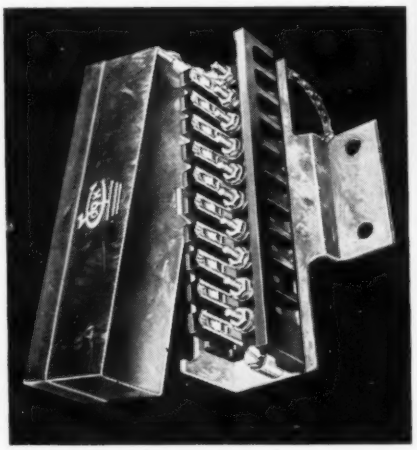

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Equipped with:

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2. Non-corrosive metal hood, Everdur studs and galvanized mounting bracket for long service life.
3. Phosphor-bronze spring clips to accommodate Cook Tru-Gap non-grounding lightning dischargers.

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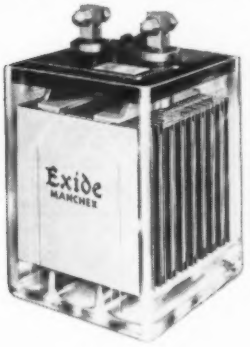

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Diamond C poles are made of Southern pine, carefully selected from live growing trees and graded according to physical properties desired. Each pole is pressure-treated with 8 lbs. (or more if you wish!) of grade No. 1 Creosote Oil, in accordance with AWPA specifications.

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Do the job faster, better with high quality GREENLEE Car Bits for pole work . . . Electricians' Auger Bits of special design for electrical installation work . . . Bell Hangers' Drills of the "Feeler Bit" type . . . Expansive Bits for boring ½" to 4" holes . . . and GREENLEE Angle-Screw Drivers which eliminate pre-boring for angle-screw installations.

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Get facts on timesaving Greenlee tools. Write Greenlee Tool Company, 2063 Columbia Ave., Rockford, Illinois.

In the Nation's Capital

(Continued from page 10)

functionally connected with service operations).

Following a recent meeting between the NPA Communications Equipment Division and the Communications Industry Advisory Committee, a proposal is being made to amend the NPA telephone control order (M-77) so as to broaden the definition of "operating contruction" (not subject to general building restrictions) to include all buildings essential to the rendering of communications services, even including leased structures, but excluding office buildings.

Three other changes in the NPA order M-77 are being urged by the NPA Communications Equipment Division, following consultation with the industry:

(1) Section 4 of the order would be modified to permit the use of a rating to obtain materials for the manufacture of products used as MRO (maintenance, repairs and operating supplies) by the operator who manufactures them, thus bringing the order into line with the Controlled Materials Plan Regulation 5.

(2) Raise the self-certification limit from $15,000 to $25,000 per project for domestic as well as international communications operators.

(3) Extending self-certification privileges, which are already being used by communications utilities for domestic facilities, to the *international* communications operations, so as to obtain necessary supplies in less time and with much less red tape than present complicated export requirements via Office of International Trade.

Utility Anti-strike Laws Still Bouncing Around

Ever since the U. S. Supreme Court knocked out a utility anti-strike law in Wisconsin over a year ago, about a dozen other state laws, designed to prevent service stoppage, have fallen under the same cloud. The Missouri State Attorney General refused to enforce the act in that state. In Florida, last week, a lower state court invalidated the state law on the grounds that it compelled utility employes to arbitrate, contrary to the ruling in the highest court decision in the Wisconsin case. In Virginia and in New Jersey, state legislatures have been busy trying to salvage some enforceable provisions of these state laws designed to prevent strikes in public utility service.

But the whole situation is likely to remain a mess, until Congress acts to revise the Taft-Hartley Act. And there is not much likelihood of that until a new Congress is elected next November. It will be recalled that the U. S. Supreme Court in the Wisconsin case threw out the state law not because the provisions of the law, in themselves, were repugnant to the U. S. Constitution, but because they were repugnant to the Taft-Hartley Act. That conflict, in turn brought into question the supremacy of congressional control over labor matters affecting interstate commerce.

In other words, if Congress had never entered the field of regulating labor relations (by passing the Taft-Hartley Act), the states would have been perfectly free to handle their public utility strike problems, as they saw fit. But inasmuch as Congress did prescribe a "cooling off" pattern for handling strikes, in essential industries, state laws which attempt to go further (by way of compulsory arbitration) are in conflict with the federal statute and therefore are invalid. Such was the U. S. Supreme Court's decision in the Wisconsin case.

Assuming that the forthcoming general election will change the complexion of Congress, either for or against such labor regulation, to the extent that it will be able to make up its mind—we can expect an amendment to the Taft-Hartley Act regarding public utility strikes about a year from now. Meanwhile, with flashes lighting all over the country in the field of labor regulation, we can only hope that a slam bang national strike does not break out in some public utility industry before that time. News came last week that AFL International Brotherhood of Electric Workers had beaten off an election challenge by the CIO Communications Workers in the Kearney, N. J., plant of Western Electric.

Rate Boost for New York

Whatever else one may think about rate regulation in New York state, at least it is pretty prompt. Late in October when the commission rejected a request of New York Telephone Co. for a rate increase for 57 million dollars, it said it would reconsider the company's circumstances if it found out that expected tax boost and other expenses were actually increased by the end of 1951. And that is about what happened in the recent order of the commission, dated Mar. 10, allowing the company a rate increase of $20,700,000 compared with $25,500,000 requested by the company.

The difference between the sum requested and that awarded by the com-

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Transmission losses per mile (terminated in characteristic impedance 1000 cps.)

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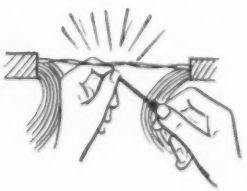

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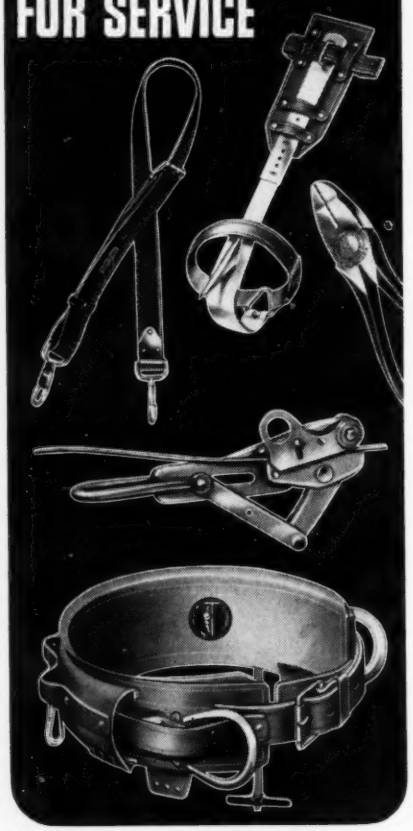

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mission will be made up, the regulatory authority said, from a recent adjustment in the division of interstate toll revenues by American Telephone & Telegraph Co. and its subsidiaries. New York Telephone's share in this division will be increased by about $4,700,000 according to the commission.

Considering the fact that the commission waited to observe the company's financial operations for the full year of 1951, the order, issued a little more than two months after the new month began, was fairly prompt service as rate cases go in these days of regulatory delay. The commission explained its action in the following paragraph:

"We have examined the company's earnings for the year 1951, its net investment and its prospective earnings for the year 1952 and find no basis for holding that our decision of October, 1951, was incorrect or that the company needs any additional revenue beyond the amount required to offset the net increase in specific cost attributable to wage and federal tax changes."

Maintenance Testing

(Concluded from page 14)

telephone system may have frequencies ranging from 16 to 100 cycles or more.

When ac passes through the winding of an ordinary dc relay, lines of force are set up in the magnetic circuit, the direction of which is constantly changing in accordance with the reversals of the ac. The direction of the lines of force, however, does not affect the attraction between the relay armature and core, since during either the positive or negative alternation of the ac cycle the armature is attracted.

At the time the ac decreases to zero, magnetic lines of force are not produced, and consequently no attraction of the relay armature occurs. This means that the armature tends to release during that part of the ac cycle in which the attraction is less. Therefore, the relay armature is alternately attracted and released. This action causes it to chatter; and this is due to the ac, in passing through the relay winding, introducing in the armature a tendency to follow the impulses of the ac, to operate on the positive and negative peaks, and to release on the zero points of the cycle as shown in *Fig 4*.

(To be continued)

V V

>> It has been said: "He who trusts men will make fewer mistakes."

Arkansas Ruling

(Continued from page 16)

another thing to select a future date after the closing of the evidence . . .

"Southwestern insists that the commission should have determined the real value of Southwestern's properties in Arkansas, rather than to have used the 'cost less depreciation' basis . . .

"From all the bases and authorities which we have studied, we reach the conclusion that no public utility has a vested right to any particular method of valuation . . .

"Until Southwestern either has a separate corporation for each state it serves, or until the various states served by Southwestern pool their regulatory staffs for a systemwide investigation, there will always be a thought that the other states are played against the one immediately concerned. We point out that the record here reflects that Southwestern obtained a rate of approximately $1,500,000 in Arkansas in September, 1948 . . . So it is evident that applications for rate increase by this utility have been persistently pursued.

"We are far from satisfied by the present record that Southwestern's rate base was thoroughly disclosed and explored. But on the record before us, we are convinced that Southwestern is not entitled to complain on the rate base . . . At all events, Southwestern has no just cause for complaint on the rate of return fixed by the commission until Southwestern makes full and complete disclosure on all matters affecting its operations . . .

"One phase of Southwestern's argument seems to be that the more telephones in a city, the greater is the cost to the individual telephone. This is contrary to the accepted theory of mass production . . . If this argument be followed to a logical conclusion, then distinct operating units would be preferable to unity of assets, equipment and personnel . . .

"After the commission allowed the said increase, Southwestern brought in a rate schedule which eight groups, based on the types and number of telephones in each such city; and the larger the city, the greater was the rate charged for each individual telephone. For example, in Portland, Ark., with not more than 299 dial telephones, the rate for one party residence telephone was $3.75 per month; whereas in Fort Smith (with an excess of 17,000 dial telephones), the rate was

$5.50 per month, and in Little Rock (with an excess of 30,000 telephones), the rate was $6.00 per month.

"Southwestern sought to justify the greater charge in Little Rock and Fort Smith by the statement that the more telephones in a city, the greater cost per telephone. But against this contention, Little Rock and Fort Smith offered figures from some other cities served by Southwestern. For instance . . .

"(a) Oklahoma City has 123,083 telephones, and the rate for a one-party residence telephone is $3.75 per month;

(b) Houston, Tex., has 272,291 telephones and the rate for one-party residence is $4.75 per month; and

(c) Dallas, Tex., has 227,118 telephones and the rate for a one-party residence telephone is $4.65 per month.

"Faced with these facts, Southwestern said that it had to charge higher rates in Little Rock and Fort Smith to make up its losses in the smaller exchanges in Arkansas. Thus, it seems that Southwestern meets itself in a circular argument. First it says 'the more telephones the more costs,' and then says 'the larger places must pay for smaller places . . .' But the questions presented by Little Rock and Fort Smith are matters that are not final and can be developed further in the situation brought about by the remand of this case . . .

"The commission will order refunds to be made by Southwestern in the amount that determined rates exceed the bonded rates. Southwestern will necessarily present . . . a revised classification of cities and rate scales; and Little Rock and Fort Smith will then be given an opportunity to present their present contention."

Following the supreme court ruling, Warren E. Bray, general manager in Arkansas for Southwestern Bell, issued a statement declaring that further rate adjustments are needed by the company " if we are to earn the 6 per cent upheld by the supreme court." He further said:

"We were disappointed that the supreme court did not allow us the increase in telephone rates we believed necessary to produce adequate earnings. The court's order fails to give any consideration to today's higher costs of providing and expanding the telephone service.

"We are not now earning the 6 per cent upheld by the supreme court even if the entire request of $4,600,000 had been allowed. The findings of the court are based in part on 1949 and early 1950's expense level, before the inflationary effect of the Korean war got into swing. Since 1950, our operating expenses have continued to climb. Fed-

CHANCE Screw Anchors

for easier, faster installation and greater holding power

New king size Thimbleye on the Chance No-Wrench Screw Anchor makes it adaptable for machine or hand installation. The Thimbleye opening is large enough to use a turning bar or anchor rod for hand installation and the rod head will fit adapters for hole boring machines. Machine installation saves time and man power on extended line construction jobs and makes the Chance Screw Anchor useful in areas where it is difficult to install screw anchors by hand. The single strand groove* in the Thimbleye prevents over-loading of the anchor with extra guys.

The blade of this anchor, in every size, is forged of structural steel to the exact pitch needed to take the right "bite" into the earth so that it goes down with the least possible effort and a minimum of earth disturbance. Welding of the blade to the rod, after forming, maintains this shape and retains the small rod size in the area of the blade. This keeps friction and earth disturbance to a minimum—aids installation and increases holding power.

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*Tripleye still available, at no extra cost, for special installations.

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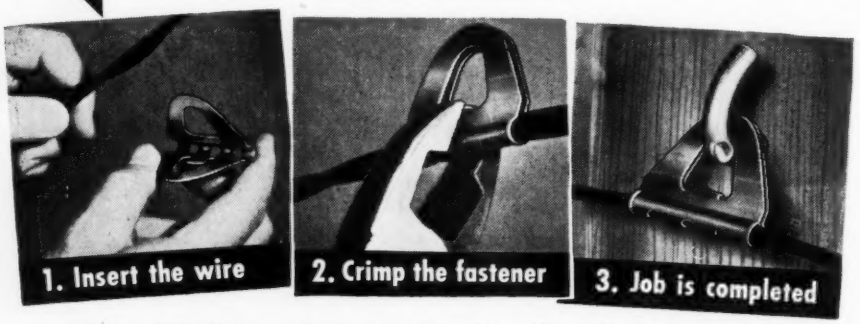

When installed, the Kearney Drop Wire Clip will stay in place. The wire is completely enclosed so that it cannot fall from the clip. It avoids spot loading, too, because it grips the wire over the entire length of the clip.

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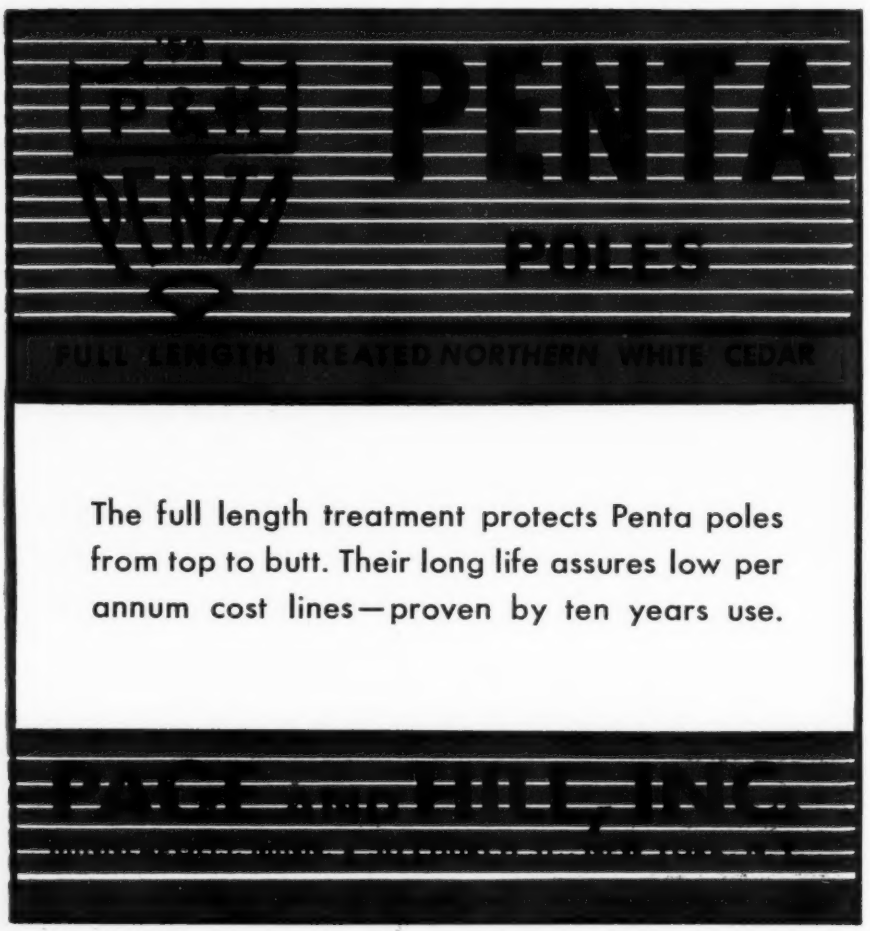
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eral income taxes were increased from 47 to 52 per cent in 1951. Increases in wages were also experienced last year.

"I want to say again that even though both the court and commission found a 6 per cent rate of earning to be fair, we are not presently earning this much even on the higher rates now being collected under bond.

"Since September, 1950, customers have been paying the 'bond' telephone rates which are higher than the rates yet to be determined under the order. These customers will be entitled to a refund of the difference between these two rates. However, this is subject to further determination by the Pulaski Circuit Court and the public service commission.

"We cannot say at this time how soon the refund can be made."

Bray said the company's earnings in Arkansas were now 4.3 per cent. He indicated that a rate increase above the $4,600,000 originally asked in September, 1950, would be sought.

* * *

Because of the recent Arkansas Supreme Court decision in the Southwestern Bell case, Gov. Sidney McMath on Mar. 4 directed the Arkansas commission to audit the books of private utility companies with a view of eliminating "questionable and political" expenditures from their rate bases.

The PSC was instructed to determine: The amount of waste and favoritism, if any, in the companies' construction and purchasing practices; whether contracts have been awarded to the lowest bidders; whether contracts have been influenced by politics; any "unconscionable" profits or any improper practices involved in building and buying; and amounts charged to advertising, legal expense, contributions, travel and entertainment, and "related matters."

V V

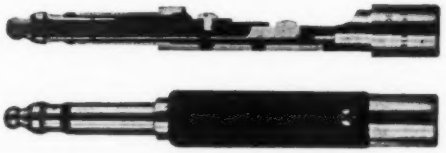
New TV Facilities to be Provided By Canadian Bell Project

Frederick Johnson, president of Bell Telephone Co. of Canada, said at the annual meeting that progress has been made on a project to establish Canada's first extensive microwave radio relay system, which is designed to furnish many additional long distance circuits between Montreal, Ottawa and Toronto.

The system also will provide special channels to carry television programs between these cities and Buffalo where it will connect with the United States television networks.

A five-year contract has been concluded with Canadian Broadcasting Co. to provide these television facilities for their use, and the company expects they will be available to carry network programs in 1953.

Avoid Shorts and Trouble with TFA PLUGS



The plastic insulation injected between the conductors stays solid. It covers the edge of the brass shell, positively preventing cause of most shorts. Invented, and used exclusively by TELEFON FABRIK AUTOMATIC A/S for over a generation.

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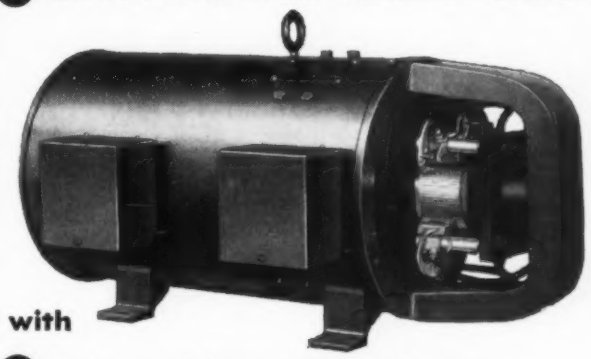

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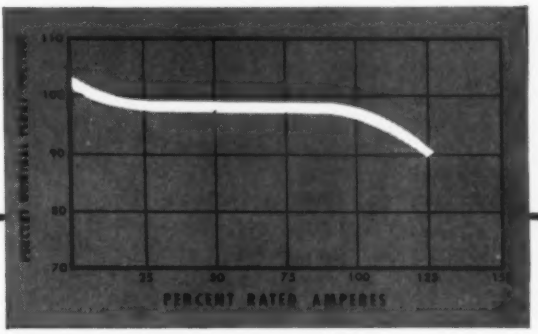

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B—INCREASES BATTERY LIFE. Operating records of many exchanges show that the E.P. Diverter-Pole Battery Charger increases battery life from six to fourteen years. High battery temperature, excessive gassing, and undue breaking down of the active cell material are prevented to assure the longest possible battery life.

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Write for Bulletin 209

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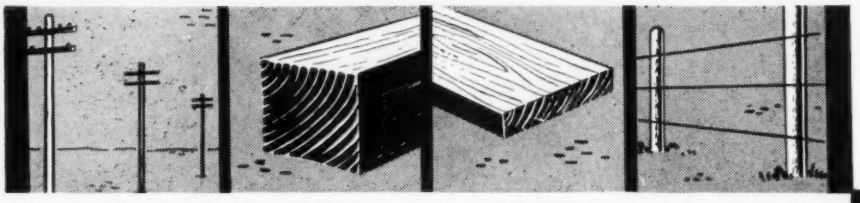

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To Honor Dr. Lee de Forest, 'Father of Radio,' on April 8

A dinner honoring Dr. Lee de Forest on the fiftieth anniversary of his entry into commercial wireless telegraphy, as the art was then known, will be held on Apr. 8 in New York City.

The dinner also will commemorate the forty-fifth anniversary of the birth of the three-element radio tube or "audion," one of the most far-reaching inventions of this century, used in every broadcast and television transmitter and receiver, in telecommunications by wire and radio, in electronic devices of every kind, including radar, guided missiles and in every motion picture theatre.

Leaders in government and in many industries that have benefited from this fundamental invention will gather to honor the "Father of Radio," now in his seventy-ninth year.

Speakers at the dinner will be former President Herbert Hoover and Charles A. Edison. Hoover, like Dr. de Forest, is a native son of Iowa and an adopted son of California. As secretary of commerce, he played the leading role in the government regulation of radio broadcasting when chaos threatened to reign in the ether. Edison formerly was governor of New Jersey and was secretary of the navy at the outbreak of World War II. His father, the great American inventor, discovered the "Edison Effect," which formed the basis of Dr. de Forest's invention of the three-element vacuum tube.

Rear Admiral Ellery W. Stone, president of American Cable & Radio Corp. and an associate of Dr. de Forest in 1920, will preside at the dinner.

Also at the speakers' table will be Brigadier General David Sarnoff, chairman of the board of Radio Corporation of America, one of the largest users of the de Forest invention; Colonel Sosthenes Behn, chairman of International Telephone & Telegraph Corp.; Walter Marshall, president of Western Union; Dr. Mervin J. Kelly, president of Bell Telephone Laboratories, and Rear Admiral Stanford C. Hooper, USN (Ret.), the "Father of Radio" in the Navy.

Elmo N. Pickerill, president of the De Forest Pioneers, will present to Yale University, on behalf of the Pioneers, a bronze bust of Dr. de Forest, sculptured by Frederick Allen Williams of New York. The bust will be received on behalf of the University by Irving S. Olds (Yale 1907), a Fellow of the Yale Corp. and chairman of United Steel Corp.

The dinner is being sponsored by the De Forest Pioneers and seven other organizations — American Institute of Electrical Engineers, American Radio Relay League, Institute of Radio Engineers, National Association of Radio and Television Broadcasters, Radio-Television Manufacturers Association, Society of Motion Picture and Television Engineers and Veteran Wireless Operators Association.

Prominent members of the De Forest Pioneers, in addition to Pickerill and Admiral Stone, include Dr. Allen B. DuMont, William Barkley, John V. L. Hogan, Frank Andrea and Haraden Pratt, the latter being telecommunications advisor to President Truman.

V V

Seeks Neb. Commission Post

Joseph J. Brown, secretary of the Nebraska Railway Commission, has filed as a Republican candidate for a six-year term as a commissioner. Walter F. Roberts, who will shortly step out of a commissioner's post, following his resignation, has announced that he will not seek a second term (TELEPHONY, Feb. 16, p. 42).

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OK Kentucky Bill Preventing Rate Increases Under Bond

A bill to prevent public utilities from putting proposed rate increases into effect immediately after application and posting of bond was passed by the Kentucky legislature on Feb. 29 and sent to the governor for signature (TELEPHONY, Feb. 9, p. 34).

Under the measure, which was drafted by the legal staff of Kentucky Public Service Commission and approved by the Kentucky Municipal League, a utility could not put a proposed rate increase into effect for at least five months after application unless the commission approved the increases sooner.

If the commission reached no decision within five months, the rates then could become effective, subject to subsequent reduction or cancellation if the commission so ordered.

The measure abolishes a requirement of the present law that a bond be posted by the utility to guarantee that refunds will be paid to consumers if its rates are disallowed. The bill stipulates that any consumer may sue to force the refund due him and recover also his court costs and counsel fees.

Other provisions of the bill enable the commission to increase from $130,000 to $250,000 a year its assessment against utility companies to finance the commission's work. The minimum assessment against any utility would be reduced from $25, as fixed by present law, to $5.00.

V V

Four Major Appointments Announced by Illinois Bell

Four major appointments, all effective on Mar. 16, have been announced by Illinois Bell Telephone Co.

Joseph D. Stockton, state area general manager, was named assistant vice president of personnel relations for American Telephone & Telegraph Co. in New York. He will be succeeded by Gordon Aller, now Chicago area general traffic manager.

J. N. Hunter, general personnel manager, will become Chicago area general traffic manager, and Gordon C. Jones, downstate division traffic superintendent, Springfield, will succeed Hunter.

The four men "came up from the ranks" in the telephone business. Stockton and Jones started with the company as clerks in 1929 and 1926, respectively. Aller, with 25 years' service, and Hunter with 26 years, began as student manager in the traffic department.

OBITUARIES

WILLIAM HERBERT GRAFFIS, 82, died on Mar. 11 at Star City, Ind. Mr. Graffis was well known and deservedly popular in the Independent telephone industry 35 years ago.

Mr. Graffis was editor of various trade publications in Chicago between 1902 and 1922, including TELEPHONY, of which he was once vice president. He also published newspapers in Terre Haute, Ind., and Sedalia, Mo. He retired in the early 20's and lived on his farm near Star City since that time.

Mr. Graffis leaves his widow, Emily, and two sons, Herb, well known *Chicago Sun-Times* columnist, and Joseph, publisher of *Golfing* and *Golfdom*, Chicago. Services were held in Winamac, Ind., on Mar. 13.

* * *

GEORGE C. BARTOO, 77, of Eden, N. Y., died on Mar. 6 at Zephyrhills, Fla., after an illness of a week.

In 1903 he formed the Eden Telephone Co., selling it to the Bell System in 1917.

Surviving are his widow, the former Mabel Saunders; a son, Herbert C. Bartoo, and a daughter, Miss Doris M. Bartoo.

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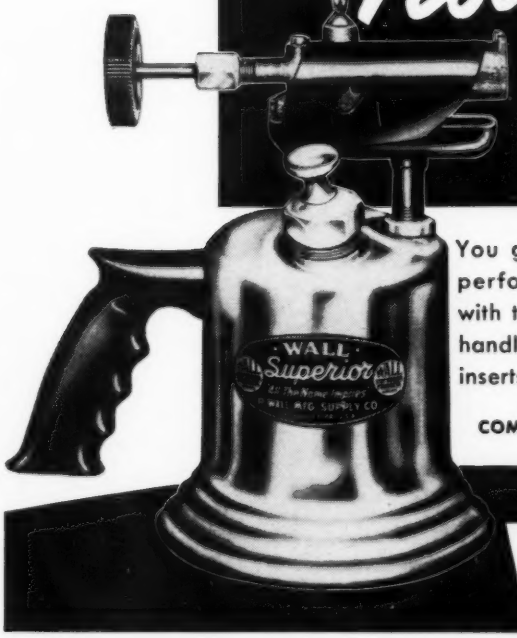
Pisto Grip BLOW TORCH



You get added safety and added performance in Wall Blow Torches with the revolutionary new Pisto-Grip handle. Drawn steel tank has brazed inserts and electrically seamed bottom. The Wall blow-proof pump means added safety. Available in brass or steel. No extra cost for this new handle. It will sell on sight! Write today for complete catalog.

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Grove City, Pa.

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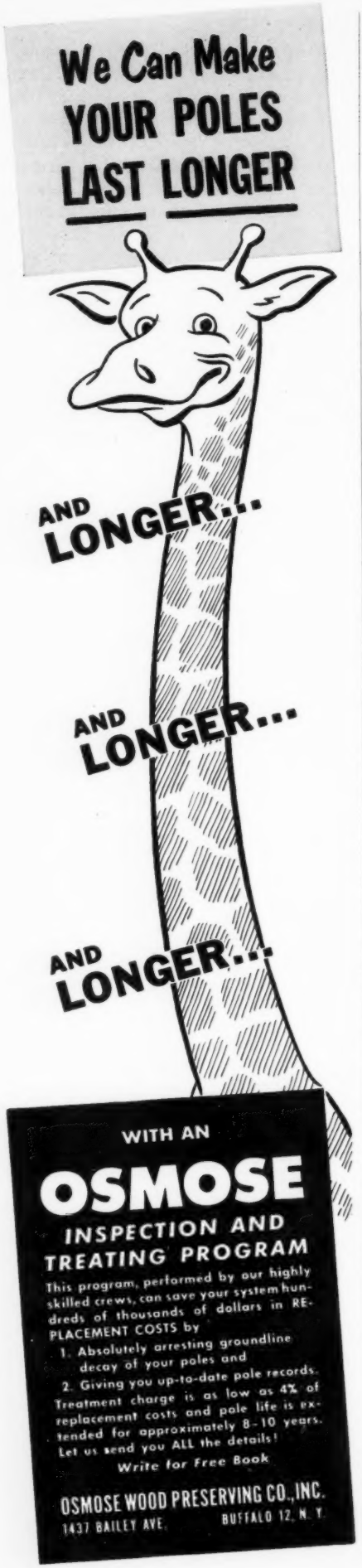
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This program, performed by our highly skilled crews, can save your system hundreds of thousands of dollars in REPLACEMENT COSTS by
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Tennessee Projects Postponed By Right-of-Way Dispute

Gov. Gordon Browning on Feb. 27 ordered Tennessee public utilities to make no additions to their installations on state highway rights-of-way pending settlement of a dispute over who will pay the cost of moving them to make way for highway improvements.

Telephone and power lines and gas and water mains were affected by the governor's "freeze" order.

Utilities may remove their installations entirely, but no other changes will be permitted until the whole controversy is settled, the governor said.

The dispute grew out of a bill backed by Sen. Kenneth McKellar which would require the federal government to pay the cost of moving utility installations from highway rights-of-way to make way for widening and improving roads.

The utility companies use the rights-of-way without cost and have been paying the cost of moving them, when it becomes necessary, until recently. Refusal to move utility installations currently has blocked four highway projects in Tennessee.

Contending that the state or federal governments should pay the cost, the utilities are supporting the bill introduced in Congress by Sen. Kenneth McKellar. In its original form, this bill called for state and federal governments to divide the cost. It was subsequently amended to require the federal government to pay 100 per cent of the cost.

Tennessee Highway Commissioner C. W. Bond said that the bill, if enacted, would force the state highway department to spend $3,000,000 a year of its federal aid funds for moving utility installations. This would reduce the amount of funds available for improving highways, he pointed out.

Declaring he is "deeply concerned," Gov. Browning has wired Tennessee members of Congress urging them to oppose the proposed federal legislation.

V V

New York Independent's Stock Issue Quickly Subscribed

Highland Telephone Co., Monroe, N. Y., recently offered for sale $100,000 worth of its 4¼ per cent preferred stock. The issue was quickly subscribed by existing and new stockholders.

At the same time, the company issued $200,000 in first mortgage bonds which were taken up by two insurance companies. The Berkshire Life Insurance Co., which already holds $500,000 of similar debt securities of the Highland company, took $100,000 of the new issue. The other $100,000 in bonds was taken by the Bankers National Life Insurance Co. of Montclair, N. J.

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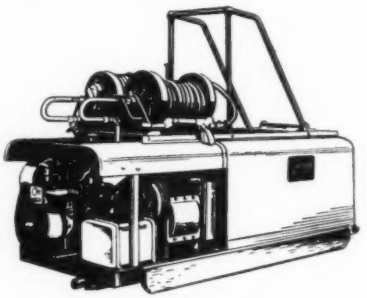
BRUSH AND WEED CONTROL WITH A

JOHN BEAN RANGER...

Here's the high pressure sprayer specifically designed to handle your brush control problems. The Ranger is engine-powered, and has the drive to get the spray material on brush and trees for thorough, fast, low-cost control.



Efficient coverage is dependent upon spraying capacity and the Ranger produces 20 gpm at 700 lbs. pressure. 200-gallon steel tank is reinforced and rust-proofed.

BUILT FOR THE JOB

To cover a larger area, and to spray in hard-to-reach places, the Ranger has two reel mounted spray hoses, each 200 feet long. The lines are always under pressure so that spraying is fully under the control of the men doing the job. Manpower is saved with Ranger high-pressure performance. Pump handles all types of spray material including whitewash.

You will find brush and weed control fast, efficient and low cost when you use a Ranger high pressure sprayer that's built for the job.

WRITE FOR FREE RANGER CATALOG

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John BEAN
LANSING 4, MICHIGAN
SAN JOSE, CALIFORNIA
DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION

MARVIN A. BYRD recently left his post as eastern district sales manager of Kellogg Switchboard & Supply Co., Chicago, Ill., to become general manager of Mansfield (O.) Telephone Co. Byrd joined Kellogg in 1944. Previous to this, he held positions with Ohio Bell Telephone Co. and Lima (O.) Telephone & Telegraph Co.

All Labor Donated as Oklahoma Independent Cuts Over to Dial

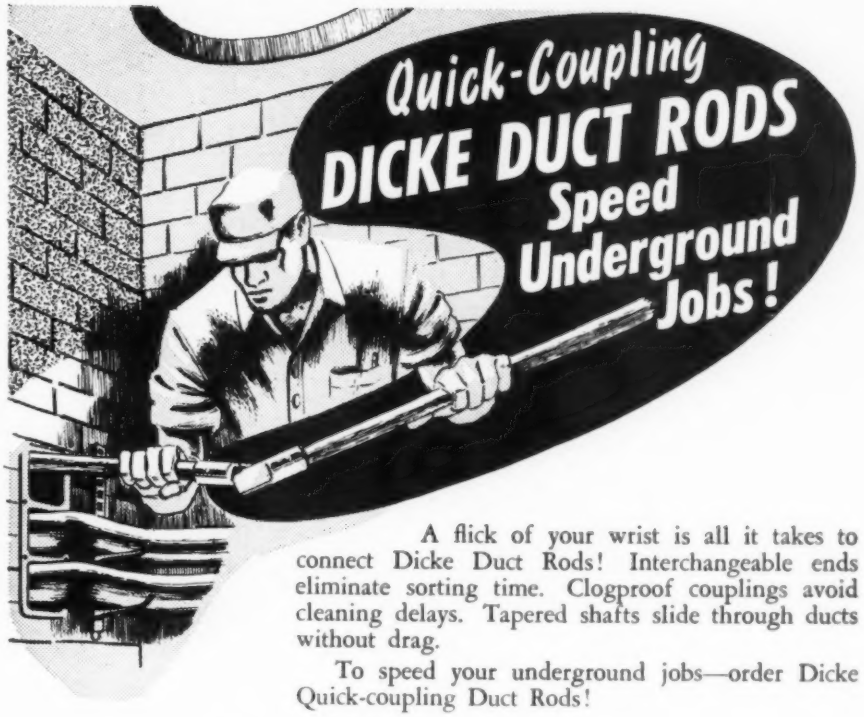
Breckenridge, Okla., people are particularly proud of the recent cut-over to dial in their town, since the installation of $20,000 worth of equipment was accomplished completely by donated labor.

In 1948, the magneto system was in run-down condition. An ice storm that winter brought about the decision to modernize that was spear-headed by Loran Behring, life-long resident and farmer. Enthusiasts sold the idea to the community, and started on the improvement campaign that eventually set up 200 miles of line and cost the subscribers "$110 (plus their time, muscle and ingenuity . . .)", as a local newspaper reports it. The builders expressed appreciation for help given by Southwestern Bell Telephone Co. experts and by those of Western Light & Telephone Co., Kansas City, Kan.

In charge of maintenance of the new system is John Karns, nephew of J. W. Walton, former general manager of Oklahoma Telephone Co., Broken Arrow, and prominent Independent telephone man. Mrs. Karns handles all the billing.

A local newspaper paid tribute to the Breckenridge achievement by observing:

"And in this day of super-government-aid . . . it's important to note first and foremost that this telephone exchange is a community project, financed by the community, built by the community, and maintained by the community."



A flick of your wrist is all it takes to connect Dicke Duct Rods! Interchangeable ends eliminate sorting time. Clogproof couplings avoid cleaning delays. Tapered shafts slide through ducts without drag.

To speed your underground jobs—order Dicke Quick-coupling Duct Rods!

Recommended and sold through our distributors

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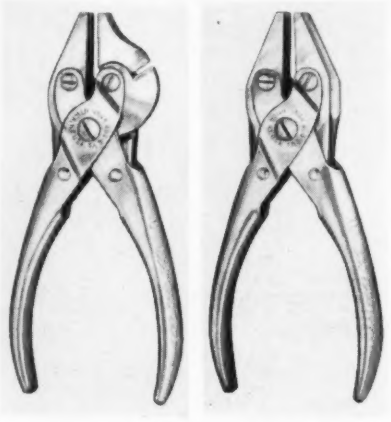
Utica Corporation Adds Two Plier Designs to Line

Announcement has been made by Utica Drop Forge & Tool Corp. that



two compound-leverage, parallel-action pliers have been added to their line.

Designated as No. 402-6½ (with cutter) and No. 400-6½ (without cutter), these two numbers will provide the Utica line with pliers for jobs requiring parallel jaws and extremely high mechanical advantage.

All parts of the 402 and 400 are made by Utica in the newly activated plant at Clinton, N. Y., which has turned out thousands of the 402-6½ for the U. S. Armed Services.

V V

C. O. Wright New Engineer For Automatic Electric Sales

Appointment of Carl O. Wright as staff engineer for Automatic Electric Sales Corp. was announced recently by L. H. Warner, company president. The appointment was effective on Mar. 1.

Wright has had more than 30 years experience in the engineering and operation of automatic telephone exchanges of the Strowger Automatic type, and is widely known among operating men in the Independent telephone field. His last previous assignment was in the engineering department of Automatic Electric Co. where for the past few years he planned exchange equipment.

C. O. WRIGHT

Wright began his career with Automatic Electric in 1917 as a draftsman. In 1920 he undertook an assignment for Pacific Telephone & Telegraph Co. involving the laying out of floor and cabling plans for a number of automatic telephone offices in Los Angeles and Portland. As a result of this experience and his keen interest in engineering matters, he was transferred to the engineering department in 1923, where he served in a number of capacities, including equipment design, floor plans and cabling, and exchange engineering.

In September, 1941, he was selected to go to Colombia, South America, where he served as general manager of Cia. Telefonica del Pacifico, Cali, and of Cia. Telefonica Central, Bogota. Returning to Chicago in September, 1948, he rejoined Automatic Electric's engineering department as staff engineer, continuing in this position until his recent appointment as staff engineer for Automatic Electric Sales. In this capacity, he will act in an advisory capacity to the company's field salesmen and their customers.

Party Line Transmission and Ringing Improved with Vincent Rare Gas Relay

May be Used with Harmonic or Coded Bells

Vincent Rare Gas Relay, RTC-2. Ready for Mounting.

End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

Since the resistance of the relay is practically infinity below 60 volts, its normal breakdown voltage, the line remains normally free from paths to ground. Ringing voltage of 85 volts ionizes the rare inert gases, is transmitted without difficulty.

The Vincent Rare Gas Relay may be used on magneto or common battery lines. Over 100,000 in daily use! Write for details.

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C. M. Christiansen Co., Phelps, Wis.—Northern White Cedar Poles, plain or butt treated.

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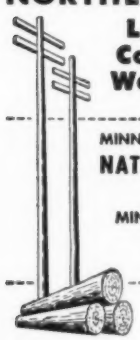
Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

Montana Pole & Treating Plant, Butte, Montana. — Fir Lodgepole Pine Poles. Butt-treated or Full-length treated with Creosote or Penta.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

NORTHERN WHITE CEDAR
Lodge Pole Pine
Coast Douglas Fir
Western Red Cedar

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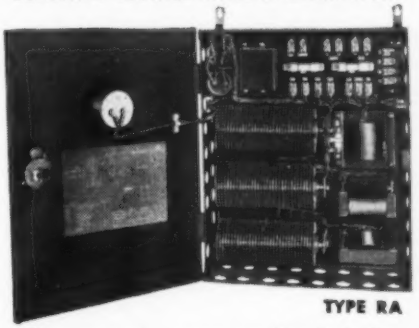
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ASSISTANT AUDITOR for Class A company with 19,500 stations, 29 exchanges in Central Illinois. Requires good accounting background, three to five years telephone experience and ability to supervise work of others. Reasonable starting salary and opportunity for advancement. Give personal data, education, experience, draft status, availability, and furnish small snapshot. Write Box No. 3168, c/o TELEPHONY.

LARGE COMPANY IN MIDDLE WEST NEEDS LINEMEN, SWITCHMEN, COMBINATIONMEN AND CABLE SPLICERS. Permanent employment in progressive company having liberal policy on pensions, vacations, etc. Top combination man rate $71.00 —other rates in proportion. Send snapshot and complete personal data including names of two references to Box No. 3167, c/o TELEPHONY.

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Man competent to take complete charge of all detailed engineering involved in conversion of 2000 station C.B. exchange to automatic operation. Must be qualified to engineer and supervise cable construction to new office building, construction of building and have complete knowledge of routine procedures necessary prior to conversion. Will consider two year contract at $7,500 per year, or suitable amount. Permanent position after conversion dependent upon age.
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Old, established, nationally known company interested in the purchase of Patents, New Products or Companies that have an application in the telephone field.
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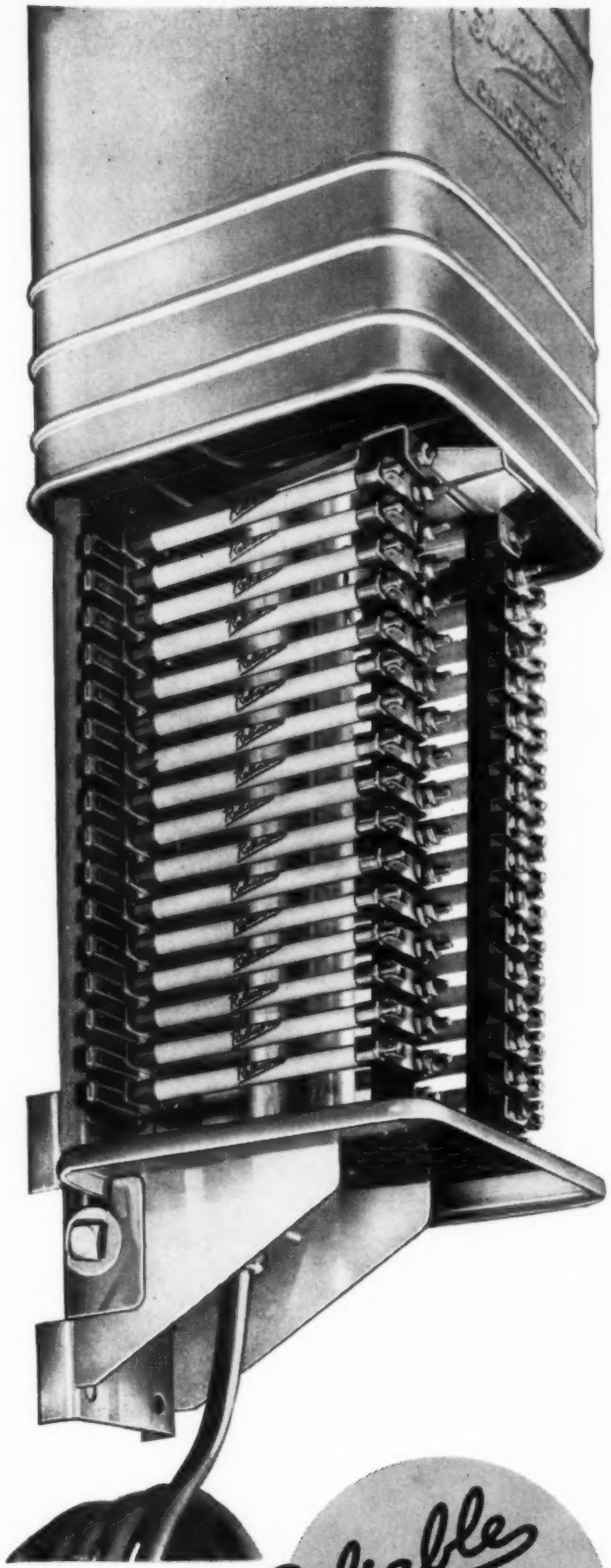

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